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THE FAR EASTERN REVIEW

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遠東時報

DOES JAPAN NEED FOREIGN CAPITAL
FOR RECONSTRUCTION IN CHINA?
THE NEW EAST ASIATIC LEAGUE
LEGALITIES OF JAPAN'S POSITION IN
CHINA

Vol. XXXIV

DECEMBER, 1938

No. 12

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VOL. XXXIV

SHANGHAI, DECEMBER, 1938

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FAR EASTERN CROSS-CURRENTS

THE Soviet-Japanese tension, which seemed to have been slightly eased following the settlement of the Changkufeng Incident, has again been aggravated over the perennial fishery controversy. Commenting on the Soviet's reply of November 28 to the Japanese proposal to conclude a new Soviet-Japanese Fishery Convention in accordance with the terms agreed upon in the autumn of 1936, a Foreign Office spokesman said on December 6 that a settlement of the question is essential for the preservation of normal relations between the two countries and consequently the peace of East Asia, and hoped that the Moscow authorities would drop their dilatory tactics and the proposed Fishery Convention could be concluded as soon as possible.

The Tokyo *Nichi Nichi* expressed anger toward the Soviet's refusal to sign the revised Convention and urged the nation to safeguard its precious rights and interests by any means.

The Soviet's grounds for refusal are that Manchoukuo has defaulted on the payment of the final instalment for the Chinese Eastern Railway, and that Japan had violated the terms of the Portsmouth Treaty of 1905 concerning the number of Japanese soldiers to be stationed in Manchuria, and the free navigation of Soya Strait between the Hokkaido and Saghalien.

The spokesman of the Foreign Office repudiated the first contention, stating that Manchoukuo was withholding the payment of Y6,000,000 simply because the Soviet Government had failed to pay claims which it owes to the former despite the repeated demands. He dismissed the other two contentions as entirely groundless.

Another factor which adds to the tension is the dispute over Japanese oil concessionaires in North Saghalien. A statement issued by the Information Bureau of the Foreign Office on December 10, accused the Soviet Union of a lack of unity between its Central and Provincial authorities and also the failure of keeping promises which were officially made through diplomatic channels.

The recent attitude of Soviet authorities toward the Japanese owned oil concessions in North Saghalien, said the statement, has given the impression that they are trying systematically to obstruct the Japanese working the oil fields conceded to them by resorting to unreasonable and unwarrantable measures. The Soviet authorities have compelled the Japanese oil concessionaires to reduce their operations by imposing restrictions on the employment of labor and prohibiting without any reason the drilling of an oil well at Ehabi and at Katanguli located in superior oil fields; the statement continued "if things are left as they are, it will be tantamount to nullifying the basic treaty of 1928 between Japan and the Soviet Union, and also the oil concession contracts signed between the two countries." The statement then described how 55 Japanese workers had been forcibly deported by the Soviet Provincial authorities from Katanguli despite the agreement reached between Moscow and Tokyo.

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The much talked of Yunnan-Burma highway has been completed, according to a Reuter report from Chungking dated December 2.

The railhead for this highway was selected at Lashio, instead of Myitkyma, because the construction work between the latter and Tengyueh, across the Chinese border, was deemed difficult on account of topographical conditions. Reports from various sources

state that about 60,000 or more Chinese laborers were engaged on the 500-mile stretch and they were not expected, according to a Singapore newspaper, to finish the work very quickly. A daily traffic of 100 3-ton trucks is maintained on the highway.

Work on the Yunnan-Burma railway is also reported to be progressing.

The construction of these lines of communication is certainly an engineering feat, and of tremendous significance from political and industrial points of view. The southern district of China will some day be turned into an arena of international rivalry.

A Domei report from Shihchiachwang, says that two new railway lines which will serve as an artery for transporting munitions from the Soviet Union into north-western China are being rushed toward completion.

The Chinese are speeding up construction of a line extending from Paoki on the western border of Shansi province to Lanchow, capital of Kansu, while the Soviet Union is converting the motor highway linking the Turksib Railway and the Chinese border into a new railway.

Materials for the projected Paoki-Lanchow Railway are reported to have been obtained by the Chinese forces from railways in and near Japanese occupied areas. Meanwhile work on the Soviet side is being rushed on a 24 hour schedule, it is reported.

The Paoki-Lanchow rail project is part of the extensive construction plans mapped out by the National Government following the collapse of Wuhan defence to develop the north-western and south-western areas of China in its avowed intention of protracted resistance to Japan.

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China is building a new short-wave transmitting station, especially designed to link up America and western Europe. This is one of the indications that China will seek help from America and certain European countries, rather than from the Soviet, according to a Reuter message from Chungking dated December 3.

The prestige of the Soviet remains high among the masses of the Chinese people, and she is willing to cultivate a closer relationship with China, but she is content to give China only a limited amount of support, because she realizes that the political situation in China is so complex that precipitate action on her part might have consequences far different from those which she is hoping for.

It is indicated that offers of more generous assistance to China by the Soviet might carry with them conditions, acceptance of which might endanger the stability of State, the Reuter report stated in part. What conditions of acceptance will the offers of assistance by other countries carry with them?

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Japan for the first ten months of 1938 was the United States best customer for iron and steel scrap, the Department of Commerce said on November 27, in its report on sales abroad, according to the United Press.

"The outstanding markets were Japan, who bought 438,660 tons (during the ten months of 1938) against 817,339 tons for the corresponding period of 1937, and Canada who bought 205,857 tons this year against 411,251 tons (during the same period of 1937)."

The report said that total exports of iron and steel scrap was 1,786,624 tons valued at U.S.\$ 116,638,208 during 1938 compared

to 2,867,304 tons valued at U.S.\$179,258,254 during the first ten months of 1937.

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Mr. Shinrokuro Hidaka, Japanese Consul-General at Shanghai since March 21 this year, left for Tokyo on December 12 in order to assume the post of Director of The Economic Affairs Bureau of the Asia Development Board, of which Lieutenant-General Heisuke Yanagawa is Director-General. Mr. Yoshioki Miura, Consul-General at Tsingtao, will succeed Mr. Hidaka at Shanghai.

The American Ambassador to China, Mr. Nelson T. Johnson, departed from Chungking on the same day by motor-car for Kunming en route to Washington. Importance is attached to his departure in view of the latest situation in China.

The Japanese Minister at Large, stationed at Shanghai, Mr. Masayuki Tani, flew to Tokyo on December 18, being recalled by the Government. It is reported he will succeed Dr. Yotaro Sugimura as Japanese Ambassador at Paris, while the successor to Mr. Tani has not been nominated yet.

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The German-Japanese cultural agreement was signed in Tokyo on November 25, the second anniversary of the conclusion of the Anti-Comintern Pact, by Mr. Hachiro Arita, Japanese Foreign Minister, and Major-General Eugen Ott, German Ambassador at Tokyo.

In accordance with the agreement, negotiations will be conducted in the near future regarding the following:—

- (1) Establishment of a German-Japanese Joint Committee of Cultural Co-operation.
- (2) Maintenance and extension of cultural equipments.
- (3) Recommendations regarding exchange of teachers.
- (4) Facilities to be granted students sent to the other country by the respective governments.
- (5) Exchange of students and professors.
- (6) Co-operation of young men's and women's associations of both countries.
- (7) Favorable treatment by the respective governments of German schools in Japan, and Japanese schools in Germany.
- (8) Exchange of books and magazines.
- (9) Exchange of art and culture.
- (10) Exchange of motion-picture films.
- (11) Exchange of radio broadcasts.
- (12) Co-operation in athletics and physical training.

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A foreign press report asserted that three Austrian instructors of the Kobe conservatory had been discharged because of their Jewish extraction, following the conclusion of the agreement, but this was emphatically denied by officials of the Ministries of Education and Home Affairs on December 2.

A message from Kobe stated that the three Austrian instructors were teaching in the conservatory as usual.

A spokesman of the Foreign Office declared, on the same day, that no racial discrimination or anti-semitism was enforced either in Japan or in the Japanese occupied territory in China, and similar conditions prevailed in Manchoukuo.

A group of six Jews arrived at Manchuli on November 27 and they are now staying in Mukden. Thirty more Jews reached Manchuli on November 29, the spokesman stated.

Jews were allowed to enter Manchoukuo either for residence or transit to North China, he continued.

In reply to a question of foreign correspondents whether free entry was being granted to foreigners by Japan and Manchoukuo, the spokesman said: "No free entry is granted, but the immigration law of either Japan or Manchoukuo is not so strict as in the United States."

He added that undesirable persons, Jews or not, would be denied entry to Japan, Manchoukuo, and especially the Japanese occupied territory in China where special conditions prevailed.

"Japan is one of the few countries where racial discrimination as such is unknown," another government official stated.

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The Hungarian government has decided to accord *de jure* recognition to Manchoukuo, according to a Domei report from

Berlin which quoted a message from Budapest. The announcement will be made as soon as possible, probably in the beginning of the next year, the report added.

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Mr. Chen Chieh, newly-appointed Chinese Ambassador to Germany, presented his credentials to Reichsfuehrer Adolf Hitler on December 16. The date had been postponed more than once for some reason or other, much to the chagrin of the Ambassador himself and the Chungking Government. Herr Hitler referred in his greetings to the Ambassador to cultural and economic relations between Germany and China, but was reticent about political matters, it is reported.

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The British Municipal Council of Tientsin has decided to accept the notes of the Federal Reserve Bank of China in payment of taxes and bills beginning on December 1.

This decision will make the acceptance of the notes linked with the Yen general throughout Tientsin and other northern ports under Japanese occupation.

The Chungking Government and Chinese circles in Shanghai expressed dissatisfaction with this decision of the British authorities.

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A federal system was urged for the government of China in the decision unanimously reached on the second day of the People's Congress held at Nanking from November 28 to 30. A declaration was issued at the close of the Congress blaming the Chiang Kai-shek regime for maladministration and advocating a federal system of government which, it was declared, best suited for China.

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The superiority complex of the Japanese people, the suspiciousness of the Manchoukuoan people, and the self-conceit of the Chinese people, which are the three peculiar "mental products" of those countries, should be harmonized and balanced with each other in order to establish lasting peace in the Orient, declared Mr. Ting Chien-hsiu humorously but piquantly on November 30, at the Japan-Manchoukuo-China Economic Conference held at Moji. Information regarding the industrial possibilities of Kyushu was supplied to the representatives of the three countries by industrial leaders of Japan, including Mr. Okinobu Kaya, former Minister of Finance. The representatives were holding a travelling conference starting from Tokyo and proceeding to Osaka, Moji and finally to Hsinking, Capital of Manchoukuo.

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An important conference was held by leaders of military and civil services in Tokyo on November 30, in the presence of the Emperor, concerning the policy of Japan for adjusting her relations with China. Mr. Akira Kazami, Chief Secretary to the Cabinet, made a simple announcement that a decision was reached unanimously without disclosing what it was.

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Completing an epochal flight from Berlin to Tokyo over a 14,600 kilometer course in 46 hours and 18 minutes, the German good-will plane, a Focke-Wulf F.W.200 "Condor," arrived at the Tachikawa Aerodrome near Tokyo at 10.10 p.m., November 30. This is the first successful West-to-East flight from Europe made in less than 100 hours. Several attempts previously made by aces of Europe to cut the 100-hour mark ended in failure without exception, mainly due to atmospheric conditions along the coast of China and Japan.

The machine is four-engined and of the same type as the "Brandenburg" that made a successful return flight from Berlin to New York. It was exhibited in public for the first time at the International Aeronautical Exhibition at Milan on October 2, last year. It can maintain an altitude of 4,000 meters and a cruising speed of 295 kilometers an hour even if one of the engines fails, and

an altitude of 3,000 meters and a cruising speed of 230 kilometers even if two engines fail. The Berlin-Tokyo flight added much to its credit, although it made a forced landing off the coast of the Philippines on December 8, on its way home. All the five fliers were safe and the machine was later salvaged.

Major-General Eugen Ott, German Ambassador to Japan, who greeted the fliers at the aerodrome, expressed the hope that it would be the forerunner of a regular service between Berlin and Tokyo, an "anti-Comintern route of the air" according to Mr. Arita, Foreign Minister of Japan.

Although the development of air communications in the Orient, especially in China, seems to have been hindered as a result of the hostilities, it was given impetus so far as the Yangtze Valley is concerned. The Tokyo-Shanghai and the Shanghai-Nanking-Hankow services have been inaugurated. They are largely of military character, as are the Fukuoka-Dairen-Tientsin-Peking and the Fukuoka-Tsingtao-Tientsin-Peking services, but will have a tremendous effect on air communications. The machines used for these services are mostly the Douglas, and their number will be increased by five Condor planes in the near future.

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A full-time Japanese Financial Commissioner will be stationed in the United States by the Ministry of Finance, it was announced on December 2.

The decision was based on greater attention being given to the United States in the field of international finance and economy in relation to Japan. The new Commissioner will be stationed in New York.

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The long heralded canal that will connect Tokyo and Yokohama will be constructed at an estimated cost of ¥668,800,000, it was decided in Tokyo on December 4. The canal will be large enough for the passage of 10,000 ton vessels, and the excavated earth will be utilized for reclamation, which will tremendously extend the existing industrial areas in the neighborhood of Yokohama. A part of the scheme on the Yokohama side has been completed since some years ago, and the second stage of the work was commenced in November last year. The work on the Tokyo side has been obstructed owing to the objection of the Fishery Association of Ohmori, a section of the Greater Tokyo beside the sea, but an agreement was reached between the Association and the Government authorities on November 3, and consequently the work will begin next spring.

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The Japan Electric Appliances Export Association is planning to charter a freighter and load it with electrical goods made in Japan, then send it on a half-year cruise to overseas markets, mainly the Philippines, Australia, Madagascar, India, Ceylon, Burma, the Straits Settlements, Siam and Java, for direct sales. The ship will be named the *Electric Export Maru* and sail in June next year, if the plan is approved by the Ministry of Commerce and Industry.

The party will be composed of a hundred persons representing the member firms of the Association, each taking 35 metric tons of electrical goods with them, and 50 representatives of other firms affiliated with the Association with one to ten metric tons of similar goods, in addition to a group of students who intend to engage in the electrical goods trade.

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A movement has been started by foreign and Chinese insurance firms in Shanghai for the purpose of settling possible disputes between insurance firms and claimants of insurance money resulting from the present hostilities, the *North-China Daily News* reported on December 4. To this end, it was learned from reliable Chinese sources, three special committees will be organized jointly by five insurance firms which are much involved in these disputes, the paper continued.

One committee will deal with the technical side of questions, and another one will look after the legal aspects of problems, while a third will be known as the War Insurance Inquiry Committee and study all aspects of problems so as to secure uniform action when claimants make claims.

Such committees will be of much help to all interests involved. Insurance experts remember the acute controversy in Japan following the earthquake and conflagration of September 1, 1923, due to conditions not envisaged when contracts were signed. The controversy involved lawyers, insurance firms, claimants, government circles and members of the Diet, but was brought to compromise by government subsidy.

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The Standard Vacuum Oil Company has succeeded in obtaining payment from the Japanese for various damages suffered by the Company's properties in North China, according to the *North China Star*, an American newspaper in Tientsin.

A payment of ¥1,275.30 has been made to the Company by the Japanese on behalf of damages suffered by the tank stations of the Company in Shanhaikwan. Another payment has been made to the Company for damages suffered in Taiyuan.

Why the Company was granted such favorable treatment was not reported. The Japanese Government declared, some time ago, that it would not be held liable for damages suffered by foreign properties due to actual fighting, citing various cases in International Law. Foreign circles seem to attach importance to the above payments, as they appear to set a remarkable precedent.

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The Chinese Consulate at Manila is reported by the United Press to have confirmed, on December 6, reports that Shanghai and Wusih Chinese industrialists were surveying the Philippines for the possibility of re-establishing there businesses which they were forced to abandon in China because of the hostilities.

Other Chinese business men are surveying south Asia and Malaya to discover suitable cities in which to reopen business, according to the Chinese Consul-General.

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Grave concern was expressed on December 8 by a spokesman of the Navy Ministry at Tokyo over the continued shipment of arms and ammunition into China through French Indo-China.

Arms transit through Indo-China is "definitely established by indisputable information," according to the spokesman.

Four routes are said to be used for this purpose, one by railway from Hanoi to Kunming, another by railway from Hanoi to Lungchow in Kwangsi, a third by waterway from Haiphong to Tongking, and a fourth by highway from Chinagar to Pakhoi.

Transshipment of arms was also being carried on from Hongkong to Pakhoi and to the French leased territory of Kwangchowwan, the spokesman said.

It is mainly by these routes that blood is being transfused into China, which is "literally bleeding to death" according to Dr. Hu Shih, Chinese Ambassador to the United States, speaking at the Harmonie Club in New York on December 4.

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General Hajime Sugiyama, formerly Minister of War, has been formally appointed to succeed General Count Hisaichi Terauchi as Commander-in-Chief of the Japanese Army in North China, it was announced on December 9.

General Terauchi has been appointed a member of the Supreme War Council.

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Britain and China have already reached an agreement in principle upon the grant of a £10,000,000 loan to the Chinese Government for the construction of a 500 kilometer railway between Hsingkwei and the Burmese border, a Havas report from London dated December 15 stated. This railway project will be financed exclusively by British interests with the assistance of the Export Credit Department, and a total of £6,000,000 will be devoted to the actual construction of the railway, while the other £4,000,000 will permit the Chinese Government to purchase extra railway material and motor trucks, the report stated.

A United Press report of the same date from Washington said that the Reconstruction Finance Corporation have authorized the Export-Import Bank to extend credits amounting to U.S. \$25,000,-

000 to Chinese interests for the purchase of American agricultural and manufactured products, and the credit would mature over a period of five years. Thus the financial mission headed by Dr. K. P. Chen has successfully attained results after three months' negotiations.



Forty-seven foreigners and their Chinese amahs, and a newborn baby, who had been forced to remain at Kuling on account of the fighting around there, came back to Shanghai by the Japanese transport *Ohmi Maru* on December 15. Arrangements for their evacuation were made by the Japanese authorities and the liaison officers of the British and the United States Navy at Kiu-kiang.



The *San Francisco Examiner*, on November 27, in a front page two-column editorial titled, America Should Keep Free From War, advocated a "realistic examination of the new situation in the Far East arising from Japanese hegemony over the Orient."

"The intelligent mind must concede that a new situation actually has risen in China, and must necessarily have risen if the Orient, now emerging from Occidental control and subjection, is assuming responsibility for its own civilized development," the Hearst publication remarked, adding that the American public must be aware of the fact that the old order in the Orient has passed and that China no longer exists merely to be exploited by the Western Powers.

Asserting that the present conflict in China is nothing new, that the pangs of war always have existed with armies marauding and murdering and that Communists and bandits have marched and counter-marched roughshod over China for a full score of bloody years, the *Examiner* declares that Americans should not be surprised by the extensiveness of the present hostilities.

Japan's campaign in China is civilizing for it is aimed to subdue Communism, the editorial says. Communism has done for China what it is doing for Spain and what it is now trying to do in France, but these catastrophic conditions could not continue definitely if the world put up a vigorous front against the Soviet Union.

The clash in China is due to two factors: the Soviet Union penetrated from the North and Japan began its occupation from the East. Britain and France naturally are disturbed by the Oriental renaissance, but the United States has no special interests in the Orient except to maintain the friendship of the Chinese.

Americans would like to see China protect itself and adopt Occidental civilization in its own way, but it is not the United States' business to protect China's independence, still less defend alien Asiatic possessions. On the other hand, the American people have contributed a great deal to the progress of Japan and the United States is respected by Japan.

"There is no reason why we shouldn't continue to receive this respect even if we distinctly do not approve of her imperialistic methods," the editorial states, adding: "There is no reason why Mr. Hull should write any more truculent, offensive notes to Japan."



Seven years ago, five small sapling of the best American brand of apple trees the "Sake Chelan Delicious," were shipped across the Pacific to the officials of Aomori prefecture, in gratitude for their aid to Clyde Pangborn and Hugh Herndon, the famous American aviators, at that time.

To-day these saplings, now fruitbearing trees, have set the standard of Japan's apple cultivation and their fruit has been presented to T.M. the Emperor, the Empress, the Empress Dowager, and H.I.H. Prince Chichibu. What more could an apple ask?

In 1931 the two aviators, Pangborn and Herndon, were graciously helped at Sabishiro coast, in Aomori prefecture, by the citizens as well as the officials, when they were undertaking their famous non-stop trans-Pacific flight.

Shortly before their departure, the aviators were handed a box of Aomori apples, the best in Japan. On arriving safely at Wenatchee airport, Washington, Pilot Pangborn remembered the gift and immediately sent a box of the finest American apples. However, these apples were not allowed into Japan, due to certain restrictions, and a year later the Wenatchee Chamber of Commerce sent five apple saplings to Aomori.

The local prefectural agricultural laboratory experimented with these saplings and developed them into trees whose fruits are now labelled far superior to the original Japanese brand in taste.

Because of their American origin, Ambassador Joseph C. Grew was also sent a box of the apples.

The American Ambassador, complimenting the successful cultivation of American apples in Japan, said: "These are some of the best apples I have ever eaten. It is another proof, no matter how small, of the traditional Japanese-American friendship."



Commerical air transportation in the Orient will advance another step in the beginning of 1939. The Japanese Government is reported to be extending their air line services from Formosa to Canton, China.

Four large DC-3, Douglas transport aircraft, have been loaded onto Japanese freighters in the port of Los Angeles, California, and delivered to Yokohama, Japan.

These large ships, which will be put into service on the new air route, were shipped complete with motors and all spare parts necessary for the control and navigation of the planes. They are being completely fitted and made ready for the new service in Japan.

Canton to Hongkong will be the next extension of this branch of the Japanese air line. It is reported that permission has been filed with the British Government in this regard. However, no definite statement is forthcoming at the present time from the British authorities in the Colony regarding the request.

Negotiations must take place before such permission is granted, and they would include reciprocal rights for the Imperial Airways, Ltd., for an air route into Shanghai or any Japanese controlled territory.



Britain, on December 3, was revealed as the first foreign country to make a large investment in North China since the outbreak of Sino-Japanese hostilities.

Mr. E. J. Nathan, Chief Manager of the Kailan Mining Administration, a British concern with headquarters at Tientsin, reported to Mr. Tadanori Nakamatsu, President of the Kailan Coal Sales Company, a Japanese firm in Tokyo, that he had succeeded in floating \$10,000,000 worth of debentures of the Kailan Mining Administration in London.

Proceeds of the debentures will be used for the purchase of equipment to increase the Administration's production by 1,000,000 tons and also to acquire 100 freight cars from Britain.

The Kailan Mining Administration has entered into a contract with the Japanese concern to supply Japan with 1,750,000 tons of coal between April, 1938, and March, 1939, whereof 1,250,000 tons will be delivered by the end of this year it was understood.



There is a little ritual that is repeated every time that Mr. Yosuke Matsuoka, President of the South Manchuria Railway Company, reaches Japan from Dairen on his way to the capital. Reporters crowd around him and ask if it is true that he is about to resign. And always he dismisses the rumor. He did it again on November 24, on arriving at Shimonoseki.

"Talk about my resignation has appeared in the papers," the *Kokumin* quotes him as saying to reporters, "but I think the papers are devoting too much space to useless and uninteresting stuff. The Japanese have a bad common trait of being inordinately interested in idle gossip, the kind that housewives indulge in around a well while doing the family washing."

"My term of office still has a full year and a half to run. As far as resignation from the presidency of the S.M.R. is concerned, my mind is absolutely open. If it is found not to the advantage of my country for me to remain in office, I'll not wait until to-morrow but will resign at once."

Mr. Matsuoka said he had toured the Soviet-Manchoukuo border districts this fall. "We can't go to sleep on the matter," he commented, "but I gained the impression that our border defences are perfectly adequate."

Does Japan Need Foreign Capital for the Reconstruction of China?

By *GINJIRO FUJIHARA, Member of the House of Peers, President of the Oji Paper Company*

THE government and people of Japan are now engaged in the momentous task of establishing a new order in East Asia, for which the reconstruction of China is a matter of urgent necessity.

According to newspaper dispatches from London a few weeks ago, Premier Chamberlain made a statement in the House of Commons to the following effect in reply to an interpellation by Major Attlee, parliamentary labor leader, in regard to the Far Eastern situation after the fall of Hankow. When the war is over and the reconstruction of China begins, the Premier is quoted to have said, the necessary capital cannot be supplied by Japan. China cannot be reconstructed, he continued, without some help from Great Britain. Will it really be impossible for Japan, I want to ask, to accomplish the reconstruction of China without stooping to beg for British capital? I propose to analyse my query and express my views on the subject.

Many people in Europe and America have an idea that Japan is strong in war, but her economic structure is extremely weak, being poor in natural resources. The most effective way to beat Japan, it is pointed out, will be to wage an economic war. This reminds me of the views which prevailed abroad when the new state of Manchoukuo was founded a few years ago. If Japan undertook to develop Manchoukuo single-handed, it was predicted in many quarters, Japan would experience serious and insuperable difficulties. It seems to me that a similar notion prevails now in connection with the present conflict between Japan and China. This way of thinking may be natural for European and American peoples. The principal reason for the policy of protracted hostilities which Chiang Kai-shek has not given up is his acceptance of this notion still prevailing among European and American peoples. The longer the resistance, thinks the Chinese leader, the weaker will become Japan's economic strength, and Japan will be crushed in the long run. Premier Chamberlain's reply, which was a statement made in the House of Commons, may in a way be regarded as intended for home consumption. His statement may nevertheless be taken as representing the views generally entertained abroad that Japan can do nothing without borrowing money from Great Britain or America.

Let me emphasize the fact that the economic strength of the Japanese nation, in which our people's ability of development and construction is an important factor, is not so flimsy and shaky as European and American peoples or the Chinese seem to think. Contrary to the anticipation held by these foreigners, Japan has not broken down financially in consequence of her work of founding Manchoukuo. The present conflict with China, which is of far greater magnitude, has since broken out, and the whole world knows that the financial and economic condition of Japan remains just as sound as before.

Let us also review the enormous development achieved by Japan during the past 70 years, with special reference to the phenomenal success attained in Formosa and Korea. All these achievements are an outcome of the strenuous efforts of the Japanese people. In this work we are not indebted to financial assistance from Europe or America.

You may also be interested in the statistics showing the development of Formosa and Korea. The annual total of exports and imports of Formosa was Y20,000,000 at the time of cession to Japan, but after 39 years, namely in 1935, it rose to Y610,000,000 which is an increase of 3,000 per cent. In the statistics of production, an increase of 450 per cent is shown in 24 years, the figures for 1912 and 1936 being respectively Y160,000,000 and Y708,000,000.

Turning to Korea, the aggregate volume of her foreign trade at the time of annexation was Y68,000,000, but 25 years later, in 1935, an increase of 2,000 per cent was shown, the figures being Y1,490,000,000. In production an increase of 800 per cent was shown after 26 years, the figures for 1910 and 1936 being respectively Y270,000,000 and Y2,320,000,000. I hope these figures

give you a concrete idea of the wonderful achievements of Japan in Formosa and Korea.

It may not be out of place to compare our figures with those of the British Empire with special reference to Canada, Australia and New Zealand. Canada's aggregate production for 1920 was \$6,350,000,000, while the figure for 1935 was \$4,390,000,000, showing a decrease of 30 per cent in the course of 15 years. The same item of Australia for 1911 was £175,000,000, and a slight increase of 230 per cent was shown 25 years later, the figures for 1935 being £400,000,000. Against £340,000,000 for 1900, New Zealand showed an increase of approximately 300 per cent 36 years later, the figures for 1936 being £1,140,000,000. Both Australia and New Zealand showed an increase in their production statistics, but it is insignificant when compared with what was accomplished in Formosa and Korea under the Japanese regime.

The British Empire, which may well be proud of its wealth and culture, is rich in financial resources for developing Canada, Australia and New Zealand. If the work of developing a country could be accomplished by means of capital alone, then these three countries should have shown far better results. Japan is known as a poor country, financially weak, but the figures which I have just quoted demonstrate that the countries superior in financial resources have accomplished less. In the light of these statistics, would it be too much to say that Great Britain and the British people are wealthier, but they are no match for the hard-working Japanese, who spare no effort for anything they undertake to do.

To those Europeans and Americans who believe in the Almighty Dollar, it may be natural to imagine that for Japan, poor in financial resources, the work of reconstructing China is beyond her power. But let me emphasize my conviction that in the work of construction and development, it is the human element that counts more than money. Some of our own people have an idea that money is required first of all in launching any enterprise. This notion is fundamentally wrong, for it is always human ability and effort, not money, that ensures success in any enterprise. Provided there are able men determined to make utmost efforts, the funds necessary for an enterprise will be available from any source. This principle applies to all enterprises that may be undertaken in Japan, as well as in China and elsewhere. After all, capital is not so difficult to raise.

A number of years ago, I lived in Shanghai and Hankow for some time doing business there. My experiences, which are not quite up-to-date, may not be of much use for the changed situation of the present day. Nor am I so presumptuous as to claim deep knowledge of China as she is to-day. If, in handling China's financial affairs from now on, we follow the conventional formulas, so to speak, which have heretofore been in vogue in Great Britain and America, as well as in Japan, the work of reconstructing China may have to depend on foreign capital, as Premier Chamberlain stated in the House of Commons. It should be remembered, however, that China is a strange country, where nothing can be correctly interpreted by fixed rules or theories. It is therefore highly doubtful if a correct idea of China's financial and economic problems can be formed by trying to apply conventional formulas. For instance, China's currency reform will have to be undertaken by Japan. I wonder if, instead of following the conventional practice as adopted heretofore in other countries, the best way would not be to follow the old-fashioned Chinese practice. I mean the masterful application of the ancient banking system peculiar to China, whereby bank-notes are issued.

If we adopt a system such as outlined above, I believe that the taxes and other sources of revenues will be sufficient to cover the administration expenses of the new regime to be set up under the leadership of Japan and those of the troops stationed in order to maintain peace and order. Prior to the present emergency, the Kuomintang Government somehow managed to defray its own expenditure, and feed the numerous troops in addition. I am of the opinion that in the future there will be a considerable

margin of the revenue for the outlay required for reconstruction in addition to defraying the government expenditure as formerly. China needs some foreign commodities, but she is an agricultural country rich in natural resources. As China's agricultural resources are developed, her products can be abundantly exported, in return for which China can import any commodities which she does not produce. Europe and America can thus buy from China food-stuffs and raw materials they need, and sell to China their manufactured goods. China's foreign trade with Europe and America will be complementary, and there will be no room for conflict of interest. The greater the volume of her export trade, the more can she buy the things she needs. I am confident therefore that if we succeed in effectively adjusting the trade relations, the work of reconstructing and developing China can be accomplished without borrowing a single cent from foreign countries.

The total exports and imports of China in 1936, the year preceding the present emergency, amounted to 1,650,000,000 Yuan, of which those handled by the Maritime Customs within the region occupied by the Japanese army in North and Central China amounted to 1,340,000,000 Yuan, representing a little over 80 per cent of the total amount. If China's foreign trade shows an increase of 200 to 300 per cent every ten years, which is a conservative estimate compared with the rate of increase in the cases

of Formosa and Korea, the aggregate volume will be increased to 3,000,000,000 or 4,000,000,000 Yuan in the course of a few years. Twenty years hence China will show tremendous progress, bringing about a complete change of the situation. China reborn in this way will have an era of unprecedented prosperity, which will be a blessing to Japan as well as to China. That the interest of various countries in Europe and America will thereby be promoted admits of no doubt. Needless to say, the reconstruction of China is a stupendous task assigned to the Japanese people, to which they are now devoting themselves heart and soul with unfaltering determination. I am confident therefore that the Japanese will succeed in this work by dint of their strenuous efforts without depending upon foreign capital. Under no circumstances must this task be left unfinished or incomplete.

I hope my audience overseas will note that I am in no way antagonistic to foreign capital. I am against the prejudice that, without the assistance of foreign capital, Japan cannot do anything. In my student days, the text-books used were English to a large extent, and I have since endeavored to keep posted on the conditions prevailing in England and America, where I have numerous friends. Let me assure you the Japanese would welcome foreign capital, if European and American capitalists really desire to participate in the work of reconstructing China.

The New East-Asiatic League

By TSURUMATSU OKAMOTO, Assistant Editor, *The Tokyo Asahi*



MOST Western critics who treat of the Sino-Japanese hostilities brand the Japanese as the invaders pure and simple and the Chinese as gallant defenders of their independence, and naturally their utmost sympathy is shown towards the Chinese.

This attitude is deeply resented by the Japanese, because they do not in the least believe that they are invading China, as is evidenced by the fact that they call the hostilities a "holy-war," by which they mean that in waging it they entertain no territorial ambition, and seek nothing but the co-operation of the two nations, by which alone permanent peace can be established in the Far East.

What Japan seeks in persecuting the war is not necessarily natural resources, markets or land. These material gains are regarded by the Japanese as secondary factors. This can be attested by the enormous sacrifice Japan is making to carry on the hostilities.

The Premier, Prince Konoe, was very explicit when he said: "What we really wish is not the fall of China, but her rise; not conquering of her, but collaboration with her; the establishment of a new order of things in East Asia hand in hand with a really awakened Chinese nation . . . it is a historical conclusion that Japan, Manchoukuo and China will be united for a common purpose of preserving East Asia without sacrificing their own national characteristics . . ."

"Under the circumstances," he said, "even the Kuomintang Government will be welcome should they join the work of rehabilitation in China as a reformed regime by throwing off their old garments."

If Chiang Kai-shek interprets this new statement of the Japanese Premier as betraying Japan's recognition of the Kuomintang Regime's invulnerability he will be disappointed.

The Birth of An Idea

In 1930, M. Briand of France propounded the most novel idea European statesmen ever conceived. He planned a closer union in Europe, commonly called "The United States of Europe." M. Briand thought that Europe could only enjoy prosperity and security by evolving itself into a single unit. His plan was not given serious consideration by European statesmen who regarded it as a mere Utopia, but the original idea in his plan has survived and is leading the new spirit of the age.

Pan-Americanism is approaching a federation of states which have a purpose of attaining common political, economic and cultural objects through geographical contiguity, as otherwise the

American continent will be exposed to extreme danger of being invaded from outside. Japan is simply aiming at a federation of the three states which alone can ensure permanent peace of the Orient just as Pan-Americanism can assure the peace of the American Continents. It is owing to this idea that Japan opposes the Nine-Power Treaty which the Japanese think, simply preserves China for semi-colonization by Western Imperialistic capitalists.

In opposing the Nine-Power Treaty Japan does not mean the repulsion of third power rights and interests. Japan will not only respect their proper rights and interests, but will also be ready to co-operate with those powers which formulate policies in consonance with the new conditions of the East. A real co-operation between Japan and the Powers, especially Great Britain, can only be realized by recognition of the fact that third powers cannot protect their rights and interests in China unless they rely on Japan's good will.

Japan's continental development plan is by no means an invasion; on the contrary it is a defensive measure. This might be called "East Asiatic continentalism." Just as Pan-Americanism is determined to protect the American continent from external aggression both materially and ideologically, so the East Asiatic Continentalism is not aggressive imperialism, but simply a defensive league between Japan, Manchoukuo and China.

Japan's Basic Aims

Of course, it must be admitted that the development of resources in China is Japan's purpose and also a colonization plan is in full swing in Manchoukuo, but all these are planned only in subservience to the greater policy of the defence of the continent.

Prof. Royawa, of Tokyo Imperial University, in an article written for the *Kaizo*, an influential monthly magazine, says: "The evolution of Japanese-Manchoukuo relations has traced a line which was quite unexpected by magnates of Japanese capitalism, for often it turned against their personal advantages. Why? Because defensive economics and at the same time geographically linked economics accompany a plan for economic development and as such can be distinguished from the Imperialism of Western Europe, which has for its basic power pure capitalism. In short, it is not colonial economics, but a league of nations in a specified sphere where they share the same need of opposing external invasion. This ideology has been made clearer with the breaking out of the Sino-Japanese hostilities. The Manchurian and the Sino-Japanese incidents cannot be explained by the commonplace colonial or commercial imperialism."

It will be seen that the nations who form a league against external invasion both materially and ideologically must necessarily have a common ideology and a common culture. Pan-Americanism would lose wholly its internal meaning if the republics supporting it had no common culture, no common political doctrine of democracy, in short, a common ideological stand.

Why did Briand's "United States of Europe" fail? Because there is no common ideological bond between Teutonic and Latin nations. Japan cannot afford to allow the Asiatic continent to drift into anarchy through the confronting of two diametrically opposed ideologies of comintern and anti-comintern, and to this ideological conflict may enter the third ideological element of commercial or capitalistic imperialism.

Dawn of A New Age

A new age has set in. This age gives a turning point to the Asiatic nations to form a league for the purpose of safeguarding the continent in which they have a common culture and ethnic affinity. On the Asiatic continent this new spirit is embodied in the Japan-Manchoukuo-China League. In America it is expressed in the old name of Pan-Americanism, but with a new meaning. The British Commonwealth of Nations forms the British Empire with the same economic and cultural background.

Mr. Malcolm MacDonald, the British Colonial and Dominions Secretary, in a speech at the Constitutional Club in London on December 13, expressed the belief that the British Empire to-day was the greatest practical expression of certain permanent political principles which ought to inspire devotion and command the services of even the youngest and most idealistic. He asserted that the main purpose of the British Empire was the gradual spreading of liberty among His Majesty's subjects in whatever part of the earth they lived. The most significant part of the Empire to-day was that part called the British Commonwealth of Nations. Mr. MacDonald pointed out the fallacy of talking about Imperialism as though it meant the exploitation, duping and domination of the weaker peoples by the strong. He said:

"How ignorant they are of the changes which have been going on inside the British Empire and which have reached a climax in our time." A new Imperialism, which was the antithesis of that conception, he added, had grown up inside the Empire. There were certain disintegrating forces in the Commonwealth to-day. There was, for instance, the force of nationalism, and there was no doubt that some of the Dominions had been bitten rather painfully by Nationalism.

Mr. MacDonald asked, what would be the future of the British Commonwealth of nations?

There were those, he said, who shook their heads and stated that this wonderful creation was the final flower of British political genius, which would blossom for a short season but that, at last, the whole flower would die and disappear. Some suggested that the Empire might fall to pieces.

Virtues and Evils of Nationalism

"I sometimes wonder," Mr. MacDonald proceeded, "if, before I leave the Dominions office, I shall not find that the people who prophesied that, are right."

He said he absolutely approved of Nationalism in the Dominions. Most of them are eager, virile countries and, like all young things, they were anxious to demonstrate that they had attained manhood. It was absolutely right and proper, Mr. MacDonald declared, that they should feel like that, but beyond a certain point Nationalism could be a disintegrating force. If one Dominion ever made a decision to break the link which tied them constitutionally within the Empire, that might be a temptation to others to follow suit. There were many counter-forces, however, which were making for continued association and co-operation between all those nations within the Commonwealth.

"I have watched the Dominions and this country come through crisis after crisis together. Everyone of those was a test of the power of this country and the Dominions to stick together."

"I have been amazed at the capacity, indeed at the instinct of the Dominions and this country, to get together in times of crisis and work together."

Referring to the material factors that worked towards continued association, the Colonial Secretary said that the Dominions had

got to recognize, and recognize for some time to come, that their main strength lay in their association with Great Britain, and that their security depended mainly on the power of the British Navy to defend their shores against aggression.

Is A World-Wide Trend

Thus it will be seen that a recent world-wide tendency is the forming of super-state leagues by nations, which have the same ideological aspirations. When a country or countries menace the ideological aspirations of a super-state league in any continent new warfare is unavoidable. Japan not only fights the Kuomintang Regime, but is ready to fight Soviet Russia if she attempts to defeat the purpose of Japan by aggressive means.

The only way Great Britain can protect her rights and interests in China is to compromise with Japan by admitting her new rôle on the Asiatic continent. China is too vast for Japan to monopolize to the exclusion of others. The British and American traders in the Far East do not understand the real motive of the Japanese continental policy, because they think in the terms of old economic imperialism and so they are afraid of having Japan fulfil her aspirations, for they think that this means the total forfeiture of their rights and interests. In short, they do not recognize the new spirit of the age. In this respect Prime Minister Mr. Neville Chamberlain is more enlightened about the real situation in the Far East, and if the Britons in the Far East recognize the new situation as the British Premier does, the frictions between Japanese and Britons in the East would be less acute.

The British Premier Mr. Neville Chamberlain practically recognizes Japan's political hegemony in the Far East, and is willing to co-operate with Japan economically for the development of China, in view of the fact that the prosperity of China not only advances the happiness of both Japanese and Chinese nations, but assures prosperity and peace of the world. It is a pity that the sagacious Premier's advanced views should not be shared by some Labor and Liberal politicians who still regard China a semi-colonial land to be exploited by Western economic Imperialism. Should the fair-minded views of the British Premier prevail, economic co-operations between Japan and Great Britain will be possible, and in this way only can the establishment of permanent peace and order in China be expected in the near future.

Essential Differences

It should be remembered that the Japan-Manchoukuo-China League is quite different from the so-called Pan-Asiatic League, which aims at the union of all colored races against white races. Such a league is geographically impossible. The new league is quite defensive in character, but not exclusive; it does not cherish racial warfare, but means to co-operate with any people, irrespective of difference of color. Japan is only opposed to those powers which act against the idea of a super-state league which is swaying the world. The super-state league means that Japan, Manchoukuo and China form a league each in an equal capacity. It does not mean that Japan subjugates China, as is generally believed by Western critics. Japan is fighting the Kuomintang simply because the Kuomintang tried, by inviting foreign powers, to frustrate Japan's efforts to launch a super-state league for the common defence of their respective domain with its culture and traditions. In short, Japan has prevented the Far Eastern continent from being Balkanized. The Kuomintang's greatest blunder lies in the fact that it thought of preserving China by setting the Western Powers and Japan at logger-heads.

Such a time-worn measure could hardly succeed in any part of the world where a great nation practically dominates others, like the U.S.A. On the American continent and like Japan on the East Asiatic continent. The "holy war" does not mean warfare against the Kuomintang forces alone; it means warfare against any group or groups which act against the new East-Asiatic Continentalism. When Japan says that she is determined to carry out a long warfare, it means not only a warfare with arms, but it also means ideological warfare, and for this warfare Japan seeks the hand of those elements in China which entertain the same ideological aspirations. Japan is also ready to shake hands with any nation that entertains the same ideology, however geographically detached, from Japan, as is shown by the anti-comintern axis.

Legalities of Japan's Position in China

Things the Occidental Chancelleries Know, But Do Not Tell

The right of the military occupant to regulate trade is well established by the law and usages of Nations.—International Law

(The Japan Times)

IMPORTANT negotiations are proceeding between Japan and three great western powers for the restoration of free trading and navigation rights in China. The term "rights and interests" is freely used in the correspondence of Great Britain, the United States and France anent the reopening of the Yangtze river. It is emphasized in the note addressed by the United States to Japan in respect to the alleged restraints placed on its nationals in the conduct of their trade and other activities in China.

To the average observer the situation is simplified into the general conclusion that Japan is exercising undue control over the territories occupied by her army and navy. Without looking closely into the matter many reasonable people take it for granted that Japan, having taken the country from the Kuomintang armies, immediately should open the territory to unrestricted intercourse; it should permit vessels of all nations to navigate the rivers, and foreigners to have free permission to exercise their normal business. Failing the evidence of such concessions they jump to the decision that Japan is exceeding her rights and unreasonably hampering the restoration of normal trade conditions.

Danger of Narrow Vision

In any discussion of this problem certain rational admissions must be made by the student of Far Eastern affairs. The first of these is that there are two sides to the issue, and only by fairly facing them can a friendly solution be found. Otherwise, to quote Henry L. Stimson in *The Far Eastern Crisis* "the danger of a narrow vision and a short-range objective is greatly increased."

In that book Mr. Stimson poses a principle harbored by the other two powers in their present concerted diplomatic action, that "The future of China is one of the great problems of the ages. But one thing is clear — she must develop in her own way. She cannot be dominated or driven by outside force into an alien or undesired form of evolution."

This high moral policy would have the more weight were it not at variance with the past activities of the interested powers, which frequently have been to impose a western culture on China, and to enforce trade privileges and treaties whether or not China concurred. If the idea of self-development applies to China likewise it exists for the whole of Eastern Asia. Now a new extension of autonomy is observable in Japan and China, which must include the right of these two countries to develop themselves in an independent manner and subject to entirely new cultural and economic conditions.

There has risen in the Far East since 1931 a vast tide of self-development which included the ambition of the Japanese to raise the mutual economic level by co-operation with China, a vast and backward continent whose military government sought to imperil the smooth course of evolution by a policy of provocation and resistance, despite the natural trend of the Chinese as a whole to neighborly intercourse. Out of this clash of ideas arose the present conflict, and from this *de facto* war may emerge the phoenix of a better Far Eastern order.

People Basically Friendly

Another point will be accepted by the observer before further delving into the business of respective rights. This is the fundamental desire of peoples to be friendly with each other, an aspect of the Far Eastern crisis apt to be lost sight of in the clash of purposes. Individuals and groups are far too prone to submit to the play of passion and strong opinion, rather than follow the course which their governments would set. But it should be borne in mind that governments themselves often distort their honest

convictions in order to maintain domestic harmony by catering to political parties, labor, racial types and so forth. Too often, also, financial interests embroil their governments in disagreement by misrepresenting conditions for selfish reasons.

Approaching the subject with the open mind, it is necessary to ask if Japan, being in a state of war with a section of the Chinese people, but not with the Chinese as a whole, has conducted her system of control in China in a manner previously approved by foreign powers. The answer to this question may be found by consulting law and precedent evolved by the west, and used by it when confronted by similar difficulties to those facing Japan in China.

Here the student will find a rich field for research. In the limited time at our disposal a few guiding rules have been discovered to illuminate the path of procedure. There are innumerable works on international law to which recourse may be had. One of the headlines over this summary will act as a signal and cogent lead. It will be found in Moore's *International Law Digest*, Vol. VII, page 273:

"The right of the military occupant to regulate, as an incident of military government, trade with the inhabitants of the territory subject to his jurisdiction is well established by the laws and usages of nations."

There we have a succinct summary of a whole library recording the decisions of other nations. Usually the written determinations have followed the action. From the United States authority turn to the French, who accord sweeping rights to the belligerent in occupation of a zone, as follows:

"Art. 50—Droits du belligérant dans la zone de ses opérations. Alors qu'il n'aurait pas le droit de les saisir ou de les capturer, un belligérant peut, même en haute mer, défendre aux navires de l'ennemi (sic) d'entrer dans la zone correspondant à la sphere d'action actuelle de ses opérations."

Il peut aussi leur interdire dans cette zone certains actes susceptibles de nuire à son action, notamment certains actes de communication, comme par exemple la télégraphie sans fil.

La simple infraction à ces interdictions entraînera le refoulement, même par la force, du navire hors de la zone interdite et le sequestre des appareils. Le navire, s'il est établi qu'il a communiqué avec l'ennemi pour lui fournir des renseignements sur la conduite des hostilités, pourra être considéré comme s'étant mis à son service et sera par suite passible de capture ainsi que ses appareils.

Institut de Droit International les Lois de la Guerre Maritime dans les Rapports entre Belligérants, Manual adopté par l'Institut de Droit International, session d'Oxford, 1913."

It is evident that the use of the words "de l'ennemi" is a mistake, and that for them should be substituted the word "neutres."

An Undeclared War

Thus far we discover the agreement among legal authorities of western countries as to the authority allowable to a belligerent in occupation. At once the familiar cry will be heard "but there is no war!" Need we pursue this subject very far? There is a war, whether the formalities have been observed or not. Even the Council of the League of Nations has ruled that "From the legal point of view, the existence of a state of war between two states depends upon their intention and not upon the nature of their acts." Hershey, as we find in a recently used quotation, says "A declaration is, of course, unnecessary in the case of civil or purely defensive wars, and there can be no doubt that, in the future as in the past, war may exist without a declaration; and that in the absence of such a declaration of intention, the legal effects of the war date from the commencement of hostilities."

Therefore there is a war, and Japan is legally entitled to the benefits of such measures as the laws and usages of war have legalized. China, or the hostile Kuomintang group in China, may lay claim to equal rights.

Has Japan proceeded upon lines already established by the three western powers now demanding free trade and navigation rights in war zones? Let us see what the foreign powers say on this by consulting the convenient ruling of U.S. Attorney-General J. W. Griggs (Opinions of Attorney-General, Vol. 22, p. 562) August 10, 1899:

"According to the well-settled principles of public law relating to territory held by conquest, and according to the adjudication of the Supreme Court of the United States in *Cross v. Harrison*, the military authorities in possession, in the absence of legislation by Congress, may make such rules or regulations and impose such duties upon merchandise imported into the conquered territory as they may, in their judgment and discretion deem wise and prudent."—Attorney-General J. W. Griggs (Opinions Attorney-General, vol. 22, p. 562), August 10, 1899.

Many of the authorities we quote are not of recent origin, but that does not deprive them of their force and effect, and we can find nothing to supersede the opinion of President Polk of the United States in his special message to congress, February 10, 1848:

"Entertaining no doubt that the military right to exclude commerce altogether from the ports of the enemy in our military occupation included the minor right of admitting it under prescribed conditions, it became an important question at the date of the order, whether there should be a discrimination between vessels and cargoes belonging to citizens of the United States and vessels and cargoes belonging to neutral nations.

"Had the vessels and cargoes belonging to citizens of the United States been admitted without the payment of any duty, while a duty was levied on foreign vessels and cargoes, the object of the order would have been defeated. The whole commerce would have been conducted in American vessels, no contributions could have been collected, and the enemy would have been furnished with goods without the exaction from him of any contribution whatever, and would have thus benefited by our military occupation, instead of being made to feel the evils of the war. In order to levy these contributions and to make them available for the support of the army it became, therefore, absolutely necessary that they should be collected upon imports into Mexican ports, whether in vessels belonging to citizens of the United States or to foreigners.

"It was deemed proper to extend the privilege to vessels and their cargoes belonging to neutral nations. It has been my policy since the commencement of the war with Mexico to act justly and liberally toward all neutral nations, and to afford to them no just cause of complaint; and we have seen the good consequences of this policy by the general satisfaction which it has given."—President Polk, special message to The Congress, February 10, 1848.

Surely the fair minded will admit that if America considers it necessary and expedient to "exclude commerce altogether" from a region of occupation, as in the Mexican war, Japan should be allowed the same scope in temporarily limiting commerce on the Yangtze, or the several ports now in possession. The balance of his ruling will fit in with the Japanese assertion that they are not taking advantage of the "closed season" by extending unfair advantages to their own commerce.

Measures for Protection

During the Russo-Japanese War, after the Takahashi decision covering the seizure of a neutral vessel in the Pescadores, the following official opinion was given which has never been superseded. In the strongest terms this supports, not only Japan's legal position in restricting commerce in the China war zone, but also establishes the right to take even more restrictive action than has so far been exercised by the Japanese army and navy:

"The practice, nature of regulations, and drift of opinion seem to show that in time of war a belligerent is entitled to take measures for his protection which are not unreasonable. Certainly he is entitled to regulate the use of his territorial waters in such fashion as shall be necessary for his well-being. Similarly a belligerent may be obliged to assume in time of

war for his own protection a measure of control over the waters which in time of peace would be outside of his jurisdiction. It is universally admitted that if a neutral vessel is carrying contraband to his opponent, a belligerent may take the vessel to a prize court for adjudication. For such an act the course of the vessel may be changed, and it may be subjected to long delay. Would it be reasonable to contend that the course of a vessel may be changed to keep it out of a specified area because it might there obtain information which would be of vastly greater importance to the enemy than a cargo of contraband, however noxious that might be?"

The closing sentence seems to have bearing on the issue raised in the reply to the three powers by the Japanese Foreign Office, to the effect that the opening of navigation might occasion the smuggling of arms. Likewise it could provide assistance to the Kuomintang by facilitating the collection and transmission of military information.

Rule Emphatic

Along the same lines, and buttressing the Japanese right to equal treatment in occupied territories as that applied by the foreign powers in the past, is this extract from the Manual of Military Law, articles 373 (which by the way is no more than the incorporation of general international rules):

"The occupant (an army in occupation) may place such restrictions and conditions upon all commercial intercourse with the occupied territory as he may deem suitable for his military purposes. He may likewise remove existing restrictions, for instance suspend the Customs tariff in force."

In this regard Germany suspended the French customs tariff between the occupied territories and German territory, in the war of 1870-71. Japan undoubtedly has taken similar action in China through her advisers with the Chinese Maritime Customs, but not, it should be noted, to the extent of securing discriminatory tariffs.

Wide Powers

When attention is turned to the extent of the powers normally conceded to an army of occupation, it is extraordinary to what limits the commander may go, and herein will be found justification for such emergency actions as have so far caused so much chagrin to international commercial interests.

The War Department of the United States once secured a valuable opinion on this question from the Hon. Charles E. Magoon, law officer, Bureau of Insular Affairs, which will be found under the Law of Civil Government Under Military Occupations, page 12:

"It will be seen that a military government takes the place of a suspended or destroyed sovereignty, while martial law or, more properly, martial rule, takes the place of certain governmental agencies which for the time being are unable to cope with existing conditions in a locality which remains subject to the sovereignty.

The occasion of military government is the expulsion of the sovereignty theretofore existing, which is usually accomplished by a successful military invasion.

The occasion of martial rule is simply public exigency, which may arise in time of war or peace."

During the transition period between the removal of the Kuomintang and the creation of the new authority in China, Japan has deemed herself authorized to act in "public exigency," and taking the place of "governmental agencies." The length of time that must elapse between military rule and the succeeding civil rule depends on two factors, the first being the natural caution of the military commander. We read in the same authority:

Power of Government

"A military government, since it takes the place of a deposed sovereignty, of necessity continues until a permanent sovereignty is again established in the territory; martial rule ceases when the district is sufficiently tranquil to permit the ordinary agencies of government to cope with existing conditions."

The power of such government, in time of war, is a large and extraordinary one, being subject only to such conditions and restrictions as the laws of war impose upon it.

As was said by the United States Supreme Court, such governing authority "may do anything necessary to strengthen itself and weaken the enemy. There is no limit to the powers that may be exerted in such cases save those which are found in the laws and usages of war."

The Texas Supreme Court, commenting on the above principles, emphasized its importance in these terms: "This language, strong as it may seem, asserts a rule of international law recognized as applicable during a state of war."

At the risk of wearying the student the final official conclusion may be quoted:

"Martial rule, as exercised in any country by the commander of an invading army, is an element of just belli. It is incidental to a state of war and appertains to the law of nations. The commander of the occupying army rules the territory within his military jurisdiction as necessity demands and prudence dictates, restrained by international law and obligations, the usages and laws of war, and the orders of his superior officers of the government he serves and represents. "It is evident that the commander in a region under martial law has a right to exercise such a measure of control of all inhabitants of the region, whether natives or foreigners, as military operations may require, and only that degree of force should be used which is necessary to accomplish the end of the war. This end cannot be brought about more speedily by inflicting undue hardships on the innocent population; indeed, such action often prolongs hostilities."

Balanced examination of these authorities will serve to show that the Japanese have, at all times, merely followed international procedure as evolved from western practice, and did not arbitrarily assert military and naval rights.

Reasonableness must, of course, dictate the continuation of control. Who is to be the judge? It would seem fair to assume that the commander must decide how far it is prudent to amend the rights given to him by international laws and usages. The Japanese notes, and statements, as covering the situation, have repeated the promise to take off the restrictions and open the rivers and ports, just as soon as convenience and safety advise. Foreigners themselves have been heard to say that the Kuomintang is a dangerous quantity, far from subdued. The Japanese, therefore, have to maintain forces far in the interior, and keep their lines of communication intact.

As we see it, the policy most likely to secure the greatest measure of Japanese co-operation and hasten the restoration of normal commerce is one of quiet and reasonable discussion, certainly without evidence of coercion, or reports thereof, likely to disturb the equilibrium of relationship between the powers.

Patience Required

These notes so far only go to disclose the legal basis for such restrictive action as the Japanese have applied in their own protection, or as measures in the reconstruction program of the country, pending the assumption of responsibility by autonomous native agencies.

Impatience on the part of restricted interests is bound to mark the evolution of a new order in the Far East. But in a state of war such as now subsists in China, it has to be borne in mind that limited affairs must yield to the broader issues between the nations. Hence the need for individuals and groups to leave the settlement of problems to their governments, and while negotiations are proceeding to maintain a reserved attitude rather than do anything likely to add complications.

Japan Shipbuilding Speeded

(Oriental Economist)

JAPAN's shipbuilding industry entered into the present period of prosperous activity about 1931, when the bottom of depression seemed to have been reached, thanks to assistance given by the Government in the form of a subsidy for the improvement of ships. The recovery continued, particularly great strides being made in 1936, and business during 1937 was unparalleled since the Great War. Tonnage under construction in dockyards advanced from 129,000 tons early in 1936 to 260,000 tons by the end of the year, and in August last year it reached 391,000 tons. Compared with the lowest figure in 1931 this was an increase of some 800 per cent and equals nearly 50 per cent of the national shipbuilding capacity.

The August 1937 figure proved to be a peak, however, and the tonnage fell somewhat during the remainder of the year. With the arrival of the current year it registered a revival and by the end of May had reached 387,000 tons, as shown in Table 1.

building, the completion of orders is inevitably delayed for at least six months.

This scarcity of materials has naturally increased the costs of construction. In 1932, ships of 1,000 tons, 14-knots, and Diesel engine powered, cost about Y.130 per ton, but to-day ships with reciprocating engines cost about Y.330 per ton. As the shipbuilding world is not expected to remain continually in the present state, and with a large number of ships expected to be released, it is not surprising that there is a general tendency on the part of shipowners to put off the placing of new orders.

TABLE 1.—SHIPS UNDER CONSTRUCTION
(Gross tonnage)

| End of | 1938 | 1937 | 1936 |
|-----------|---------|---------|---------|
| January | 389,020 | 266,408 | 129,124 |
| February | 371,354 | 305,369 | 137,898 |
| March | 371,383 | 310,868 | 173,155 |
| April | 358,592 | 313,183 | 165,316 |
| May | 386,722 | 336,710 | 177,895 |
| June | — | 352,265 | 183,190 |
| July | — | 389,215 | 185,880 |
| August | — | 391,565 | 212,384 |
| September | — | 385,810 | 208,582 |
| October | — | 354,715 | 218,554 |
| November | — | 350,800 | 231,106 |
| December | — | 330,930 | 266,721 |

Source: Department of Communications.

Thus shipbuilding is now favored by a good opportunity fundamentally, but at the same time it faces a number of handicaps. The difficulty in obtaining the necessary materials remains, the problem of high costs of shipbuilding has not been solved and because of the stringent restrictions on the use of the essential materials for ship-

Orders Declined

After August last year when there was an almost complete absence of shipbuilding orders, the amount of orders placed with the various dockyards steadily declined. The aggregate amount placed between January and July of this year was only 383,000 tons, as compared with 677,000 tons in the corresponding period of last year. The decrease was 294,000 or 42 per cent. As a result the amount of tonnage under construction has also decreased, and at the end of July it consisted of 116 ships aggregating 904,000 tons, or not far from the 800,000 ton level as shown in Table 3.

TABLE 2.—NEW CONSTRUCTION ORDERS PLACED

| | 1938 | | 1937 | |
|-----------|------|--------------------|------|--------------------|
| | No. | Deadweight tonnage | No. | Deadweight tonnage |
| January | 11 | 135,500 | 9 | 101,100 |
| February | 14 | 103,900 | 7 | 73,450 |
| March | 4 | 11,200 | 8 | 69,500 |
| April | 5 | 14,950 | 16 | 112,280 |
| May | 16 | 84,450 | 8 | 58,100 |
| June | 4 | 15,100 | 28 | 203,200 |
| July | 5 | 18,100 | 10 | 59,670 |
| August | — | — | — | — |
| September | — | — | 2 | 8,700 |
| October | — | — | — | — |
| November | — | — | — | — |
| December | — | — | 5 | 11,600 |

Source: Nippon Shipping Exchange's compilation.

TABLE 3.—SHIPS BOOKED AND UNDER CONSTRUCTION

| | 1938 | | 1937 | |
|--------------|------|--------------------|------|--------------------|
| | No. | Deadweight tonnage | No. | Deadweight tonnage |
| January .. | 133 | 1,059,060 | 141 | 883,200 |
| February .. | 140 | 1,108,810 | 146 | 951,450 |
| March .. | 135 | 1,075,530 | 147 | 996,850 |
| April .. | 129 | 1,019,830 | 153 | 1,078,330 |
| May .. | 124 | 975,170 | 153 | 1,097,080 |
| June .. | 119 | 932,720 | 171 | 1,242,370 |
| July .. | 116 | 903,920 | 171 | 1,239,570 |
| August .. | — | — | 163 | 1,185,577 |
| September .. | — | — | 155 | 1,133,457 |
| October .. | — | — | 149 | 1,083,557 |
| November .. | — | — | 136 | 1,023,397 |
| December .. | — | — | 128 | 961,947 |

Source: Nippon Shipping Exchange's compilation.

Furthermore the expansion plans of the various dockyards seem to have reached a limit. According to the returns of the Bank of Japan, the amount of capital for shipbuilding and docks which was raised in 1936 was ¥18,300,000 including both new establishments and capital increases, and that for 1937 was ¥72,200,000. This year, however, the amount has markedly decreased. The total from January to June was only ¥6,300,000, constituting hardly more than one-fourth of the amount in the corresponding period of last year.

On the whole, Japan's shipbuilding industry has just passed a peak and is now moving on a downward path. This situation calls for considerable caution in the future but is not necessarily so acute as to warrant serious pessimism. As mentioned above, the amount of tonnage under construction during May was at the 380,000-ton level, and the construction orders in hand came to 900,000 tons at the end of July. As naval construction must also be taken into account in gauging the shipbuilding capacity of the various dockyards, these volumes may be regarded as enough for two years.

Demand will Increase

Moreover, it is expected that the demand for new medium and small-sized shipping will increase with the extension of Japan's navigation rights in China. On the basis of the figures at the end of May this year, the total registered Japanese tonnage of 5,165,000 included 476,000 tons of ships below the 1,000-ton class and 1,381,000 tons of ships in the 1,000-ton to 4,000-ton class. The 1,857,000 tons for the two classes constitutes the medium and small-sized shipping, and represents 36 per cent of the country's total tonnage. This proportion is rather large compared with the world proportion of 32 per cent, yet it is entirely inadequate in view of the nation's geographical circumstances, the expansion of its navigation rights in China, and the increased movement of cargo in the neighboring seas owing to the increased productivity of Japanese industries.

While the standard charterage recently fixed by the Shipping Autonomy League is ¥5.40-¥5.85 per ton for largesized vessels, it is ¥8 for 4,000-ton vessels, ¥12 for 3,000-ton ones and ¥14 for those smaller than 2,000 tons. The difference demonstrates the current scarcity of medium and small-sized vessels.

Accordingly, the Communications Ministry has decided to ask the Finance Ministry for ¥5,200,000 in the next year's budget with which to subsidize the building of medium and small-sized shipping. As the tonnage to be subsidized is 200,000, the subsidies work out at about ¥30 per ton. It is doubtful whether such small subsidies would suffice to bring results when the cost of building medium and small-sized ships is ¥350 to ¥400 per ton as at present, yet there is no doubt that this measure coupled with the determination of standard sizes for ships will result in the smooth functioning of the shipbuilding industry, which is now at a deadlock.

Authorities Study

The shipbuilding industry bill which will be introduced in the coming 74th session of the Diet, is now being carefully gone over by the authorities. No concrete details are yet known, but it seems that the measure lays emphasis on an adjustment of the prices of ships and on the power of official orders in regard to the building of ships. In contrast to the existing provisional shipping control law which is a temporary wartime measure, the projected law is to be a permanent one. Consequently, the proposed bill will institute a license system, and the authorities will also seek to stabilize the industry which at

present tends to fluctuate, being very prosperous in good times and depressed in other times.

To adjust the prices of ship construction, Government supervision of industrialists and the adoption of standard sizes of ships are necessary, and it is also essential that a regular supply of the needed materials at reasonable prices shall be assured. Steel is being supplied and distributed by the Federation, but appropriate measures are needed to regulate the supply of other materials and machinery.

In order to stabilize the industry, the "equilibration" of shipbuilding is also necessary. That is to say, orders should not be allowed to accumulate unduly in some establishments at the expense of the others. Measures to encourage and finance shipbuilding must therefore be perfected.

These requirements of the industry are to be placed on a legal basis by the proposed bill, but small-scale shipbuilders will be left outside the scope of the law's application.

The conclusion to be drawn from the foregoing review of the situation is that the condition of the shipbuilding industry just now does not warrant optimism, but does not necessarily call for grave pessimism. In particular, when it is considered that most shipbuilding establishments are also manufacturers of other kinds of machinery, the promising state of the machine-making industry must be a source of satisfaction. Consequently, it may be said that so far as the business results of the shipbuilding companies are concerned, there should be no reason to worry for some time to come.

The Textile Industry and Cotton in Manchuria

The world-wide economic panic of 1929-33 badly affected the farming industry in Manchuria. Fall in price of agricultural products, reduction of the area for tillage, and the accompanying reduction of income for farmers, together with a flood which subsequently occurred, caused a great economic blow to Manchoukuo which stands on the basis of its agriculture.

The Manchoukuo authorities established a constructive plan for relieving the farmers of the effect of the economic depression. In the first place they encouraged planting of cotton, hemp, tobacco and the like. It will be remembered that the Manchoukuo government had previously established a 20 years' plan for the greater production of cotton, but in 1937 a five-year industrial plan was newly established and naturally the plan for production of cotton was changed, and a new five-year plan for cotton planting was published, thus meeting the urgent requirement of both greater output of cotton and the relief of farmers. According to Dr. S. Nihara, cotton plants are classified as follows:—

- (1) *Gossypium dardadeuse*, L.
- (2) *G. Braziliense*, L.
- (3) *G. Periranum*, L.
- (4) *G. Hirstum*, L.
- (5) *G. Herbaceum*, L.

The plants in Manchuria belong to *Gossypium dardadeuse* and *Gossypium herbaceum*. Ninety per cent of the inhabitants of Manchuria wear cotton clothes and this alone presupposes a flourishing textile industry, but as a matter of fact, the industry is far behind that of flour milling or that of oil manufacturing, and Manchuria has to import annually 150,000,000 pounds of cotton manufactures.

The unsatisfactory condition of the textile industry in Manchuria is due first, to the high cost of production; second, to low tariff rates, third, to the import of raw cotton owing to the shortage of cotton production. The consumption of raw cotton yarn during the last five years is given in the following returns.

| 1933 (in kilograms) | | | | | |
|---------------------|------------|-------------|---------|-------------|--|
| Production | Import | Total | Export | Consumption | |
| 58,469,003 | 13,913,787 | 72,382,790 | 3,549 | 72,379,250 | |
| 1934 (in kilograms) | | | | | |
| 83,306,163 | 16,995,303 | 100,301,466 | 35,440 | 100,266,026 | |
| 1935 (in kilograms) | | | | | |
| 38,105,758 | 12,326,610 | 50,436,368 | 876,119 | 49,560,249 | |
| 1936 (in kilograms) | | | | | |
| 57,388,728 | 23,209,865 | 80,598,593 | 2,103 | 80,596,490 | |
| 1937 (in kilograms) | | | | | |
| 68,374,883 | 37,225,621 | 105,600,504 | 160,366 | 105,440,138 | |

The Manchoukuo Government encourages cotton plantation by defraying ¥1,344,000 for subsidies. For improving cotton plants, and also increasing annual output of raw cotton, experimental farms have been established at Chinchow, Liasyang and Kinchow.

Philippine-Japanese Trade

By RIZAL F. GATICA

WHEN the present Sino-Japanese undeclared war broke out in July, 1937, informed observers of Philippine foreign trade declared that trade between the Philippines and Japan would considerably increase as it was expected that Japan would make special efforts to sell more to the Philippines and other countries in Asia where she has already gained an economic foothold in order to help sustain the government in what was seen as a long struggle in China. However, the optimistic view of these observers was in error as trade between the two countries during the current year has showed a big drop compared with that of 1937.

Figures obtained from the Philippine bureau of customs reveal that total trade of the Philippines with Japan during the first nine months this year fell to only P.32,187,387, Philippine pesos, as against a total trade of P.40,325,379 in the same period of 1937, showing a decrease of P.8,137,992, or over 25 per cent. Total imports of the Philippine Islands from Japan during the period under review amounted to P.21,324,718, while exports totalled P.10,862,669, showing a balance of trade in favor of Japan amounting to approximately P.10,462,049, or nearly 50 per cent of the total imports. These compare with the imports valued at P.23,310,279 during the corresponding period in 1937 and with exports valued at P.17,015,100.

These figures indicate, therefore, that Japan has sold less to, and bought less from, the Philippines during the first nine months of 1938, with the difference between exports and imports this year greater than that of last year, as can be seen in the favorable trade balance of Japan greater this year than in 1937. It must be admitted, however, that Japan has always maintained a favorable trade balance against the Philippines for the last fourteen years as revealed in the following table:

| Year | Imports From Japan | Exports To Japan |
|--------------|-----------------------|---------------------|
| 1924 | P.17,087,685 | P.12,543,910 |
| 1925 | 21,889,872 | 11,735,380 |
| 1926 | 23,227,086 | 14,618,522 |
| 1927 | 22,185,451 | 15,447,704 |
| 1928 | 25,861,753 | 13,944,735 |
| 1929 | 23,879,095 | 14,259,084 |
| 1930 | 25,912,971 | 8,743,914 |
| 1931 | 21,953,482 | 7,176,621 |
| 1932 | 12,310,012 | 5,144,595 |
| 1933 | 11,363,204 | 5,921,782 |
| 1934 | 20,692,548 | 8,523,602 |
| 1935 | 24,342,949 | 10,718,729 |
| 1936 | 26,528,530 | 16,786,272 |
| 1937 | 32,204,014 | 20,029,821 |

Seen as "One Way" Trade

This continuous trade balance in favor of Japan has been viewed in Philippine business quarters as a one-way trade between the Philippines and Japan and has been looked on with disfavor by certain foreign business elements, especially American. This is but natural in a world beset with commercial rivalry, and the Philippines being under the United States flag, American business men believed that the Philippine market should be preserved for American goods, looking with much concern at any competition from other foreign sources, especially the cheap Japanese goods.

In Japanese business circles, however, it has been argued, and perhaps with reasonable truth, that Japanese and American goods have their own respective fields in the Philippine market, distributed according to their quality and prices and in accordance with the purchasing power of the Filipino people. Japanese goods in the majority of cases are for the farmers and laboring classes. Japanese cotton goods, rayon and silk cloth, glassware, porcelain, lamps, toys and other cheap articles are readily bought by the common masses in the Islands because of their lower prices than any other goods entering the Philippines.

Japanese business men in the Philippines further argue that trade between the two Oriental countries is approaching an equilibrium owing partly to the increasing exports of mineral ores

such as iron, manganese and copper, to Japan. While it is true that Japan has tended to increase its imports from the Philippines during the last four years, its exports have increased faster than its imports.

The balance of trade in favor of Japan in 1934 amounted to over P.12,000,000, in 1935 it amounted to over P.13,000,000, but decreased to a little over P.9,000,000 in 1936 and increased again in 1937 to over P.12,000,000. During the first nine months of 1938, the trade balance in favor of Japan was over P.10,000,000 as stated previously. Whether or not this figure would approach or top the trade balance in 1937 is still a question to be settled after the end of the current year. Although the trade balance during the first nine months this year is in favor of Japan to the amount of over P.10,000,000, trade between the two countries in the months of August and September showed tendencies to approach an equilibrium as can be seen in the following table showing the trend of trade for the first nine months of 1938:

| Month | Imports From Japan | Exports To Japan |
|-------------------|-----------------------|---------------------|
| January | P.2,968,295 | P.1,382,077 |
| February | 2,616,940 | 703,457 |
| March | 3,446,767 | 2,122,004 |
| April | 1,930,658 | 1,202,390 |
| May | 2,038,107 | 1,104,272 |
| June | 2,130,787 | 774,876 |
| July | 2,740,450 | 1,038,358 |
| August | 1,884,227 | 1,044,339 |
| September | 1,568,387 | 1,490,896 |

Shifting Trade Currents

The big balance of trade in favor of Japan was confined during the first seven months of the year as a result of heavy imports of Japanese cotton goods, silk and artificial silk cloth, iron and steel and their manufactures, glassware, and earth and clay and manufactures which offset the increasing shipments of mineral ores to Japan. On the other hand, Japan restricted its purchases of Philippine abaca, lumber and timber, leaf tobacco and maguey and cotton fibers, the first named being the worst hit. The shrinkage of the foreign trade of Japan is not only true with the Philippines but also with other countries in the world. Japan curtailed its purchases abroad due to the determination of its government to meet the requirements of the Japanese army and navy and to provide the necessary funds for the extension of hostilities in China.

In normal years, Japanese purchases of Philippine abaca amount to more than P.9,000,000, and lumber and timber to more than P.3,000,000. For the first nine months this year, however, Japan imported only about a third of its total imports of abaca in 1937 and about half of lumber.

Philippine shipments of iron, copper and manganese ores which registered big increases this year are insignificant compared with the heavy shipments of Japanese cotton, silk and artificial silk goods, glassware and other articles. The Philippines has been a heavy buyer of Japanese cotton goods which threatened for some time to replace American cotton goods in the Philippine market. Recently, however, shipments of Japanese cotton goods have been contracting not so much for the agreement between American and Japanese cotton cloth manufacturers as for the refusal of Chinese merchants in the Philippines who predominate in the retail trade to handle Japanese cotton goods.

Arrivals of cotton piece-goods from Japan for the first nine months of 1938 amounted to 19,710,587 square meters compared with 35,547,796 square meters in the same period in 1937. Imports in September this year totalled 1,272,762 square meters as against 4,220,802 square meters in the same month in 1937. The United States registered marked gains in shipments of cotton piece-goods to the Islands, the total for the first nine months being 68,132,221 square meters compared with 25,736,628 square meters in the corresponding period in 1937, and in the month of September this year, imports amounted to 6,383,448 square meters compared with 3,450,403 square meters in the same month last year.

Fish and Fish Products

Other principal imports of the Philippines from Japan are fish and fish products which amounted to P.3,881,885 for the first nine months of 1938 compared with P.2,148,521 for the whole period of 1937; silk and artificial silk goods valued at P.2,498,312 this year, total value in the whole year of 1937 being P.3,176,258; iron and steel and manufactures valued at P.1,713,180, which is more than half of the total value in 1937; glassware, earth and clay goods valued at P.1,027,159 as against P.1,595,277 in the whole period of 1937; coal valued at P.947,113 this year compared with P.1,263,658 last year.

Principal exports of the Philippines to Japan are iron ore which has replaced abaca as the first important item, total shipments for the first nine months this year have already amounted to 545,425,000 kilos valued at P.2,906,560 or over the exports in the whole period of 1937 valued at P.2,636,503; abaca, now second in the list, exports valued at P.2,798,169 so far this year; lumber and timber P.1,502,881; copper ore which jumped to fourth rank, total shipments amounted to 21,597,000 kilos valued at P.1,090,878 for the first nine months this year compared with 8,141,000 kilos valued at P.303,400 in the same period last year and with 15,413,385 kilos valued at P.656,211 in the whole year of 1937; manganese ore, exports aggregated 44,000,000 kilos valued at P.828,055 so far this year compared with only 7,600,000 kilos valued at P.140,000 in the first nine months of 1937 and with 7,491,321 kilos valued at P.256,656 in the whole period of 1937; leaf tobacco, exports

valued at P.505,806; maguey, P.315,757; molasses, P.155,401. With the exception of iron, copper and manganese ores and leaf tobacco, all items showed decreases, including chromite ore, a war material, exports of which amounted to only P.24,907 in value for the first nine months of 1938.

The prediction that trade between the Philippines and Japan would be accelerated during the Sino-Japanese conflict did not materialize, instead Japan curtailed its purchases from the Philippines as a result of the operation of Act No. 92 of 1937 of the Japanese Diet which requires permit for the importation of abaca, lumber and timber and other articles from the Ministry of Commerce and Industry of the Japanese Government, while iron, copper and manganese ores which made gains in Philippine exports to Japan are not covered by this act and are not restricted until June, 1939. It is now the consensus of opinion in Philippine business and government circles that normal trend of trade between the two countries should be resumed as soon as the affair in China is terminated.

Some observers point to the geographical positions of the two countries as natural factors that will link them together economically in the future. The Philippines is one country in the Far East which is essentially agricultural producing abundant raw materials and minerals which Japan needs to run her industries to feed her increasing population. Besides, Japan has already made huge investments in the Philippines, and therefore, trade between the two countries is expected to continue in the coming years, and perhaps the trade balance will continue to be in favor of Japan for some time yet, as it has always been in the last fourteen years.

Japan's Use of Substitutes*

JAPAN faces two economic necessities to-day. One is to restrict as far as possible the importation of goods for private consumption. The other is to facilitate as far as possible the importation of raw materials for munitions.

Under a wartime economic system in which the whole economic strength of the nation must be mobilized for the preparation of war materials, it is inevitable that the production of goods for ordinary, private consumption be reduced to a certain extent. This policy has been approved and is being supported by the Japanese people. There still exists, however, a latent demand for satisfying the requirements of the daily life of the people. This conflict between the demand for war materials and that for goods for private consumption is conspicuously indicated in the prevailing situation in Japan, a country that depends largely on foreign lands for her supply of raw materials.

As a means of solving this perplexing question, various substitute articles have appeared. Produced from domestic raw materials, these articles serve to lessen the importation of non-urgent and unessential goods from abroad.

The Department of Commerce and Industry has appropriated Y.220,000 for the purpose of holding exhibitions promoting substitute manufacturing industries and of subsidizing private experiments in manufacturing substitute articles. The exhibitions are to be held in the six largest cities of Japan starting in October of this year. Additionally, the Department is co-operating with the manufacturers concerned in order to increase the production of various kinds of substitutes.

Appearance of Substitute Articles

The principal materials, the consumption of which on the part of the general public is restricted, include: steel, pig iron, copper, platinum, lead, zinc, tin, volatile oils, heavy oil, raw cotton, wool, skins and hides, and rubber. Besides these materials, non-urgent and unessential goods may not be imported freely; economy in consumption of them is of particular importance in sustaining Japan's position in the international balance of trade.

In place of many of the above articles, various kinds of substitutes have already been produced, but the latter cannot be considered perfect as yet in spite of concerted efforts made to improve them. In the following, the principal substitutes now being produced will be described.

Staple fibre, as a substitute for raw cotton and wool, has gained considerable popularity throughout Japan. Its quality is rapidly being improved; the development of a water-proofing process for the fibre is noteworthy.

For iron, steel and other metals, various kinds of substitutes are being studied according to uses. Primarily, metals are solid and strong, easily workable and cheap in price. For these merits, they are used for many different purposes, but there are also many cases where metals are not absolutely required: they can be replaced by porcelain and earthenware and wood, synthetic resin and other products. Porcelain and earthenware, of course, have defects, such as low resistance against impact and weakness to instantaneous changes of heat and cold. These defects have gradually been adjusted through careful selection of raw materials on the basis of recent successful studies.

For machine parts and gears, it is now possible to substitute metals with synthetic resin products. Phenol resin absorbed into organic fibre and hardened by heating and pressing processes has been found somewhat superior to metals in point of its high degree of solidity, its anti-corrosive and anti-acid properties.

Recently, porcelain and cement of great strength have been invented by Dr. Nagao Hayami. These are metal substitutes manufactured of biscuit and cement forms hardened to high degrees and made easily workable by processing with phenol resin. They can be used in place of metals for the manufacture of iron pipes and lead tubing and for related purposes.

A Metal Substitute

In addition, a metal substitute known as "stoney" has recently been invented. It is used in place of metals in the manufacture of building materials, street lamp posts, safes, refrigerators and metal art goods. "Stoney" is produced from imitation marble cement mixed with special chemical preparations and hardened. It has a high degree of solidity and is water-proof, fire-proof and acid-proof. Eternit pipes, which are made of cement and asbestos, have already been used as substitutes for iron pipes.

As substitutes for cow hide, horse hide and sheep skin, skins of aquatic animals such as whales and sharks are now utilized, while vulcanized fibre, oil cloth and other imitation leathers form

*Tokyo Gazette.

substitutes for leather bags and other leather products. Vulcanized fibre is made of cotton rag paper soaked in zinc chloride solution and compressed. It is also used as a substitute for metal products.

In place of rubber, reclaimed rubber is extensively used. The latter is not inferior in its properties to rubber. Research work is being completed in Japan concerning synthetic rubber, which has already been produced in foreign countries. It is manufactured either with carbide or other hydro-carbons.

In place of hemp and jute, "maoran," a kind of flax originally grown in New Zealand's Maori region, has recently been discovered to be a suitable substitute.

Slag wool made of mineral slag and glass wool can be used for asbestos. As substitutes for raw materials in chemical industries, synthetic tannin for tanning preparations, soy bean casein for milk casein and synthetic resin for natural resins such as shellac and rosin are available. Progress is being made in the preparation of all these substitutes, but with a few exceptions, their production is still very limited. As this production is chemical in nature, it is fortunate that the chemical industry in Japan has attained its present high standard. It is anticipated that all feasible substitutes will rapidly be produced on an industrial basis.

Substitute Manufacturing Industries

The use of substitute articles has hitherto been considered temporary, and plans to produce them as emergency measures under the wartime economic system. However, careful thought is now given to their production as a permanent means of attaining self-sufficiency in raw materials. Japan cannot assume that supply of materials for national defence from foreign countries will always be ensured in case of a prolonged war. To depend on foreign countries for a large part of raw materials for industries not only renders

Japan's international trade balance unstable but also hampers the sound growth of the industries. In a country such as Japan, where economic expansion has been achieved with amazing rapidity, appropriate measures must be adopted to provide self-sufficiency in raw materials; they must be realized as quickly as possible.

At present, importation of raw materials for industries constitutes 80 per cent of Japan's total imports. The value of the annual imports of raw cotton and wool, the chief raw materials for Japanese textile industries, has reached Y.1,200,000,000, or 30 per cent of the value of total imports. Fortunately, the manufacture of staple fibre is now on a firm basis, as Japan's production is exceeded only by that of Germany. Yet, in spite of the Government policy of encouraging the staple fibre industry, the output in Japan represents merely about 20 per cent of her total raw cotton and wool requirements.

In petroleum, which is one of the most important factors in national defence, domestic production is extremely limited. As a result, Japan imports more than 90 per cent of her total annual oil requirements and pays Y.200,000,000 each year for this purpose. Hence, the Government has attempted to solve the question of liquid fuels by the supply of artificial petroleum to take the place of natural oil. As a concrete measure, the seven-year plan for the promotion of the artificial petroleum manufacturing industry has been established under the Artificial Petroleum Industry Law, under which governmental authorities are co-operating with civilian interests. By this plan, the Government seeks an annual domestic production of 2,000,000 litres of artificial petroleum by 1943. This amount will replace 45 per cent of the estimated annual requirements.

Other governmental studies in the discovery and use of substitute articles and industries for their manufacture concern synthetic rubber and synthetic resin. At a later date, concrete plans will be formulated to promote these and other manufacturing industries.

Automobiles in the Philippines

By ADEUDATO J. AGBAYANI

ANY country whose motor vehicle registration has increased by five million per cent in barely more than one-third century is entitled to an important rôle in the dramatization of the story of the world's overland transportation. That is the case of the Philippines, which used the expensive Benzine from the Manila drug stores to feed its first automobile, a "Brazier" car manufactured in Continental Europe 34½ years ago.

In this Far Eastern territory of Uncle Sam, there is neither province nor city that does not boast of an up-to-date car. Even storm-buffed Batanes, the most northern province of the Archipelago, has now its first automobile. The car owner, however, is not a Filipino but a Nipponese, the only one of his race residing in that island group. This particular Nipponese is married to a Filipino and was once a public works contractor in the Philippines. (Batanes is literally a stone's throw from Nippon).

At this writing (1938 or 40th anniversary of U.S. occupation of this Country) there are now more than 50,000 automobiles, trucks, and motorcycles using Philippine highways and streets. Americans are responsible for influencing the growing popularity of motor-cars in this corner of the World. Salustiano Reyes, superintendent of the Motor Vehicle Division of the Philippine Bureau of Public Works, assures us that the current year will be the biggest Banner Year in the history of motor vehicle registration of this tropical country, which still has numberless horse-drawn two-wheeled vehicles of various types and description.

The value of motor-cars in actual operation to-day in the Archipelago has been placed at Pesos 120,000,000.*

Source of Revenue

For the registration of motor vehicles, the Philippine government has collected to date from local motorists approximately Pesos 30,000,000 since it tapped this fertile source of public income. From 1912 to 1937 (exactly a quarter-century) the income of the

local Government for issuing licenses to automobiles, trucks and bicycles amounted to Pesos 28,520,620.38. The income for 1938 is expected to be four and a half million pesos, bringing the grand total to over the 33 million peso mark! For the months of January and February alone motorists in Manila—the capital of the Philippines—paid the Commonwealth Government P.1,150,267.13 in auto registration fees.

The Philippines occupies a very important place in the world's automobile map. As early as 1935 this country of 7,083 islands had already outnumbered such lands as Austria, China, Cuba, Hungary, Portugal, Finland, Poland, Northern Ireland, Morocco, Tunisia, Greece, Egypt, Liberia, Turkey, Bulgaria, Yugoslavia, Rumania, Persia, Lithuania, Latvia, Ceylon, British Malaya, Indo-China, Hongkong, and Manchoukuo. When it comes to registered motor vehicles, "the Philippines has more motor-cars than any of the South American countries, except Brazil and Argentina," says the superintendent of the local motor vehicle division of the Bureau of Public Works.

In the Orient, the Archipelago is only second to Nippon in the general number of motor-cars. However, in the number of expensive and big cars, the Philippines beats any country in the Far East. Nippon has an advantage, however, in that she has automobile factories and assembly plants. This is not yet the case with the Philippines. Due to War economy measures, the number of civilian automobiles in Japan will not be boosted this year. The *per capita* in automobile registration in the Philippines must be one of the highest in the world outside of the so-called World Powers. Thirty of the provinces and cities of the P.I. have more cars individually than has the country of Liberia. The population of the Philippines (a Commonwealth under the American Flag) is estimated at from 14,000,000 to 16,000,000. The Philippines is the ninth biggest consumer of U.S. goods.

*One dollar, U.S. money is equivalent to 2 pesos, Philippine currency.

First Car a "Brazier"

The first automobile in the Philippines—a noisy, tiny "Brazier"—was brought to Manila from France by the wealthy Tuason family of Manila. That was in 1903 when motor vehicle registration was yet unknown in this part of the globe. It was only seven years after the importation of the first automobile here that motor vehicle registration was required by the local national government. I think the first truck in the P.I. was a "White," brought to the Philippines through the help of a Russo-born American-Jewish businessman.

Like the pioneer American teachers and soldiers in the Philippines the first motor-cars in the P.I. were handicapped by the inadequacy and poor condition of roads and highways. To-day there are approximately 17,000 kilometers of public highways as well as 8,600 durable bridges and culverts, of which 5,500 have a total span of 26,000 meters of concrete structures (A kilometer is .62135 of a mile, U.S. standard).

Virtually all the makes of American cars are in the Philippines. The Manila Police Department was the recipient recently of a P.10,000 armoured Ford automobile donated by the Manila Trading and Supply Co. President Manuel L. Quezon has what is called a custom-built car. He has half a dozen luxurious cars. Judge William Haussermann, American Gold King in the Philippines, is said to have one of the most expensive automobiles in the Far East. It is related that when President Quezon was in Europe, a Spanish official remarked that the Spanish monarch (then King Alfonso XIII) was using an expensive Buick. To which one of the aides of the Filipino leader remarked that Buick is even used by students and provincial motorists in the Philippines.

Mr. Espiritu, chief clerk of the motor vehicle division of the BPW, noted that some of the makes and types of cars in the Islands are Ajax, Adler Truff, Auburn, Aucas, Austin, Auto-Calesa, Blackhawk, Buick, Cadillac, Case, Chalmers, Chandler, Chevrolet, Chrysler, Citroen, Columbia, Commonwealth, Continental, Beacon, Cord, Daimler, Datsun, D.K.W., De Sotto, Devauk, Dodge, Durant, Delage, Dusenbergs, Erskine, Essex, Knight, Fiat, Ford, Framo, Franklin, Goliath, Gray, Hanomag, Hertz, Hispano, Hudson, Hupmobile, Marmon, Marquette, Maxwell, Mercedes Benz, Moon, Morris, Nash, Oakland, Oldsmobile, Opel, Overland, Packard, Paige, Peerless, Pengeut, Pierce Arrow, Plymouth, Pontiac, Renault, Roosevelt, S. Booth, Singer Special Assembly, Star, Stearns Knight, Studebaker, Stutz, Terraplane, Trailmobile, Vauxhaul, White, Willys, Willys Knight, Wolverine, and Zundap.

Some of the trucks in use bear the following names: Japan, Abrans, Fox, Alcon, American Coach, American La France, Absen, Arcadia, Autocar, Bethlehem, Backway, Cart Cable, Condor Diessel, Corbett, Crabbe, Daihatsu, Dayelder, Delahaye, Denby, Diamond, Dover, Electric, F.W.D., Fabco, Fagcol, Fargo, Federal, Fisher, Fleet, Fordson, Freight, Fruehauff, G.M.C., Garford, General Vehicle, Graybor Tractor, H.D., Holt, Highway Trailer, Industrial, Kashborer, Los Angeles, Master, McCormick, Minerva, Nabco, Oshkosh, QMC, Republic, Riker, Rogby, S.K.M., Saurer, Sayers, Seagrave, Service, Sterling, Stewart, Tempo, Thorne, Twin Coach, Utility, Walker, Kashborer, Ward Electric, Warner, Wartwan, Wither, Buick, Brokeway, Auburn, Cadillac, Case, Chrysler, Citroen, Datsun, De Sotto, Devauk, Dodge, Durant, Essex, Fiat, Ford, Framo, Franklin, Goliath, Hudson, Hupmobile, International, Marmon, Maxwell, Morris, Nash, Oakland, Pierce Arrow, Plymouth, Packard, Paige, Peerless, Pontiac, Reo, Studebaker, White Willys, Willys-Knight, etc.

Types of Motorcycles

The types and makes of motorcycles used in the Philippines include Ariel, B.S.A., Briggs Stratton, Cleveland, D.K.W., Evans, Excelsior, Fitchel and Sacks, H. D. Henderson, Indian, Mister, Nakaersalum, N.S.U., Norton, Overland M.C., Sacks, and Raleigh. Motorcycles are not widely used in this part of the world despite the growing popularity here of Made-in-Japan bicycles. The number of motorcycles here has never topped the 1,209 mark recorded in 1917. With the exception of the years 1915, 1917, 1918, 1919, 1920 and 1921, there was no time when the 1,000 mark was reached as far as motorcycles registered were concerned. In 1931 the number of MC's even dropped to 385, which incidentally was 74 lower than that in 1912.

All important businessmen and society figures as well as high officials of the Commonwealth Government have been using motor-cars during the past years. Unlike in the United States,

the Philippines does not have many motor-cars on the farms. The growing popularity of modern means of transportation and the construction of a national network of highways in the Philippines has been inspired by North Americans.

The most motorized provinces as far as overland transportation is concerned are Negros Occidental, Rizal, Pampanga, Bulacan, and Batangas. The city of Manila, the capital and principal port of the Philippines, has one-third, of the total number of cars in the entire Country. At the close of 1937, the following were the "Tops" in car registration: Batangas 1,046; City of Baguio 1,118; Bulacan 1,151; City of Cebu 1,643; City of Iloilo 1,427; Manila 18,308; Negros Occidental 4,084; Pampanga 1,440; and Rizal 2,682. The rankings of the provinces in car registration have been changed radically because of the creation of new chartered cities, which formerly belonged to the provinces. These provinces are Iloilo, Cebu, Davao and Zamboanga. Negros Occidental, which is the center of the sugar industry, will have lesser cars to its credit in 1938 because its capital will be listed alone, it being a new chartered city.

Side by side with the growth of the number of registered cars in the Philippines is the boost in the gasoline, tyre and automobile spare parts business. During the first quarter of 1938 the Philippines imported Pesos 3,502,526 worth of automobiles and trucks as compared with only Pesos 2,072,529 for the corresponding period in 1937. Imports of electrical machinery and apparatus during the first quarter of 1938 were valued at Pesos 2,953,165 as against Pesos 1,691,078 for the same period last year while the importation of machinery and parts jumped from Pesos 3,412,299 for the first quarter of 1937 to Pesos 8,020,761 during the same period of 1938. In Manila, the capital of the P.I., there are 12 importers of automobiles, 25 importers of automobile accessories, and 18 dealers of bicycles and accessories.

Increasing Registration

From 1912 to 1937 there have been registered by the Bureau of Public Works 375,083 automobiles, 185,881 trucks, and 20,023 motorcycles, or a total of more than half million motor vehicles. In 1910 there were less than 250 motor vehicles in the Islands. The best years of automobile registration in the Philippines so far were 1930 when the registration fee collection reached Pesos 2,014,772.49; in 1933—Pesos 2,786,923.86; 1936—Pesos 2,782,177.89; 1937—Pesos 4,137,342.11; and of course 1938, during which the collection will be expected to be in the neighborhood of Pesos 4,500,000.00. This is big if we recall that the collection in 1912 was only Pesos 13,469.00. A large part of this collection goes to the "gasoline fund" which is used for the construction, improvement and repair of highways. From 1912 to 1915 motor vehicles in the Philippines were registered only once at the rate of P.10 a car and that registration requiring annual fees was only begun in 1916, when the fee was changed to P.0.20 per horse-power. This rate was observed until 1922 when the registration fee was computed on the basis of P.0.50 per horse-power, P.0.50 per passenger and P.0.20 per kilogram weight. To-day the bureau of public works merely charges a flat rate, doing away with computation fees, storage registration, etc.

There is also a new high in the number of chauffeurs—professional or otherwise, in the Philippines. We now have more than 70,000 licensed drivers as against only 2,650 in 1912.

Another significant thing as regards automobile registration in the Archipelago is the fact that of this more than four million peso annual income, the motor vehicle division of the Bureau of Public Works spends only for its annual operation 3.02 per cent of that earning. And strangely, the office of the Motor Vehicle division, manned by 100 employees as against only seven in 1912, is quartered under the Track and Football grandstand of the huge million-peso Jose Rizal Memorial Stadium at the outskirts of Manila. Someday this automobile-loving country may "run" away from a stadium and establish itself in a modern office expressly built for motor-car registration.

The Philippines amuses the westerner when it comes to the use of automobile plates. Filipino officials of the government as well as prominent men and women are very particular in the selection of low numbers as well as those easy-to-remember numbers to remind them of their lucky numbers, the numbers of their telephones, the house number of their residences, winning Lottery and Sweep-stakes tickets, insurance policies, etc. Car No. 1 belongs to the President of the Philippine Commonwealth while Car No. 1,

(Continued on page 460)

Carnegie Endowment Aids Asia's Peace Projects

THE Carnegie Endowment provided \$1,500 toward the expenses of the Fourth Annual America-Japan student conference held at Stanford University, last year, says the annual report for 1937 of the Division of Intercourse and Education of the Carnegie Endowment for International Peace. The report is issued in the name of Nicholas Murray Butler. It reveals that Tsunejiro Miyaoka, a lawyer in Tokyo, has been closely associated with the Endowment since it was first organized in 1911 and has been continuing his correspondence.

The report of the Division in the Orient, in condensed form follows: "As the year 1937 closes and events in the Far East during the past 12 months are contemplated, the first and most natural reaction is perhaps to question as to what under such circumstances could have been achieved in the field of international peace. The work of education in any field and above all in the field of international peace is a slow and arduous task. Lessons must be learned and relearned. Experiences must often be repeated. But the quiet work of infiltration of ideas continues steadily and will some day yield results.

Institute of Pacific Relations

"The outbreak of war in the Far East reacted immediately upon the work of research and publication being carried on by the Institute of Pacific Relations in China and in Japan. The study of the press and public opinion in Japan was cut short by the war through the dispatch to service in China of the director of the study. One of the many phases of the study of the Japanese textile industry which is being carried on by the Japanese Council, namely the position of the Japanese cotton mills in China, has been at least temporarily interrupted by the closing of many of these mills and in some instances their complete destruction.

"The Secretary-General of the Institute, after witnessing the outbreak of war in North China, was able while traveling through Manchuria, Korea, the Soviet Far East, Siberia and the countries of western Europe, to make a study of the repercussions of the war in several countries. In 1937, he visited and personally consulted leaders of the Institute in nine of the eleven member countries. The American Council of the Institute determined soon after the fighting began in North China in July, 1937, that would, in addition to its long-range work of education and research, endeavor to meet the widespread demand in the United States for accurate background information on developments of the war. The Council, therefore, inaugurated a series of special spot news releases which were distributed to newspapers all over the country, to a large number of members of the Administration, and to members of the Foreign Affairs Committees in both the Senate and House. In the San Francisco office, a mimeographed news sheet was issued primarily to high school teachers during the latter part of the year, as an experimental method of distributing accurate news on Far Eastern developments and for calling to the attention of teachers bibliographical references of a rather popular nature which might otherwise escape their attention. A special series of pamphlets was prepared by staff members who also very considerably increased the number of their public-speaking engagements and the number of special articles written for magazines and newspapers.

"Forty-seven Japanese students representing some thirty schools, colleges and universities of Japan were guest-delegates at the Fourth America-Japan Student Conference held at Stanford University, California, August 1-7, 1937. Seventy-seven American students participated, representing nineteen institutions of higher learning in the United States, chiefly near the Pacific Coast, and the University of British Columbia. Two delegates from the University of Hawaii were included in the American group. The Japanese delegation was accompanied by Professor Tetsuji Kada of Keio University and Mrs. Shinko Kan of Nippon Women's College.

Far Eastern Subjects

"In view of the situation in the Far East at the time this conference was held, it is of particular interest to note the subjects discussed:

Student Life in Japan and America
Japan's and America's Economic Stake
Armaments and National Security

Government and the Individual
Marriage and Family Life
The Worker and his Job
Moral and Spiritual Values
World Society and the National State
The Rôle of the Arts in Japan and America.

"Addresses by guest-speakers were delivered at three general meetings of the conference as follows:

Paul Eliel, Graduate Business School of Stanford University,
'Trends in the American Labor Movement'
Kenneth W. Colegrove, Professor of Political Science at
Northwestern University, 'Parliamentary Government in
Europe, Asia, and America'
Samuel Flagg Bemis, Professor of History at Yale University,
'The Monroe Doctrine To-day'

"At the close of the conference the Japanese students made a trip along the Pacific Coast as far south as Los Angeles, returning north to Seattle from which city they sailed for Japan on August 28.

"This conference is the outgrowth of one held in Japan in 1934, at which American students were cordially welcomed and entertained as guests by Japanese students. In 1935, a return visit was made to California and in 1936 American students again went to Japan. At all of these conferences in both lands cordial hospitality has been offered to the visiting students, personal friendships and relationships resulting in many cases. The conference at Stanford University was planned and carried through entirely under student management. The Carnegie Endowment provided \$1,500 toward the expenses of this conference.

"In the very critical period of 1937, the correspondence from the Carnegie Endowment representative in Japan has been continued. Mr. Miyaoka, a lawyer in Tokyo, has been closely associated with the Endowment since it was first organized in 1911. His reports during the period under review have been accompanied by a profusion of cuttings from papers published in Japan setting forth the national point of view and emphasizing that the fixed policy of the government is to bring about Sino-Japanese co-operation."

Automobiles in the Philippines

(Continued from page 459)

U.S.A., belongs to the American High Commissioner. There is a dislike for No. 13.

The other day a Catholic Bishop (Santiago Sancho) blessed the new automobiles of five Filipino government officials.

The story of motor vehicle registration in the Philippines since the local government started issuing license plates (made in the United States) may be better understood from the following table:

| Year | Automobiles | Trucks | Motorcycles | Total | Income |
|-------|-------------|---------|-------------|---------|------------------|
| 1912 | 947 | 180 | 459 | 1,586 | Pesos* 13,469.00 |
| 1913 | 1,508 | 237 | 711 | 2,456 | 19,392.66 |
| 1914 | 1,993 | 320 | 882 | 3,195 | 16,335.00 |
| 1915 | 2,674 | 383 | 1,050 | 4,107 | 20,305.00 |
| 1916 | 3,295 | 399 | 876 | 4,570 | 37,261.97 |
| 1917 | 4,524 | 559 | 1,209 | 6,292 | 62,002.19 |
| 1918 | 5,445 | 759 | 1,111 | 7,315 | 84,243.74 |
| 1919 | 6,892 | 1,310 | 1,038 | 9,240 | 113,909.11 |
| 1920 | 9,692 | 2,689 | 1,181 | 13,562 | 177,263.24 |
| 1921 | 9,481 | 2,747 | 1,113 | 13,341 | 207,275.85 |
| 1922 | 9,537 | 2,904 | 965 | 13,406 | 518,825.85 |
| 1923 | 9,662 | 3,118 | 909 | 13,689 | 628,918.24 |
| 1924 | 10,973 | 2,817 | 833 | 14,623 | 633,214.36 |
| 1925 | 13,549 | 5,225 | 815 | 19,589 | 798,428.62 |
| 1926 | 16,239 | 6,541 | 758 | 23,538 | 985,561.28 |
| 1927 | 18,547 | 8,283 | 767 | 27,597 | 1,145,369.34 |
| 1928 | 19,791 | 9,552 | 703 | 30,046 | 1,254,684.81 |
| 1929 | 21,341 | 10,365 | 574 | 32,280 | 1,341,364.17 |
| 1930 | 22,899 | 14,380 | 388 | 37,667 | 2,015,772.49 |
| 1931 | 23,373 | 14,131 | 385 | 37,889 | 1,895,165.40 |
| 1932 | 25,187 | 15,772 | 626 | 41,585 | 1,852,637.40 |
| 1933 | 24,865 | 15,237 | 554 | 40,656 | 2,476,917.86 |
| 1934 | 26,507 | 15,868 | 534 | 42,909 | 2,515,860.94 |
| 1935 | 27,381 | 16,457 | 524 | 44,362 | 2,786,923.86 |
| 1936 | 28,420 | 17,355 | 518 | 46,293 | 2,782,177.89 |
| 1937 | 30,361 | 18,293 | 540 | 49,194 | 4,137,342.11 |
| Total | 375,083 | 185,881 | 20,023 | 580,987 | P.28,520,622.38 |

*(NOTE :—A Peso is equivalent to \$0.50 U.S. currency).

Colonization and the Population of Java

(The following article is published under authority of the Department of Economic Affairs at the Government of the Netherlands Indies by G. Kolff & Co., Batavia, Java, N. I.)

IN 1850 the population of Java did not exceed 11 million souls; in 1920 there were 34.5 million, and in 1930 their number had increased to nearly 41 million.

In the course of the past 130 years the population increased tenfold, so that in 1930 the number of inhabitants per square kilometer amounted to 316.1.

TABLE I.—POPULATION FIGURES FOR 1930

| Regions or countries | Number of inhabitants | |
|----------------------------------|-----------------------|-------------------|
| | in thousands | per sq. kilometer |
| Java and Madoera (natives) | 40,891 | 316.1 |
| Outer Provinces (natives) | 18,246 | 10.7 |
| Neth. Indies | 60,727 | 31.9 |
| The Netherlands | 7,936 | 231.4 |
| Japan (the 4 main islands) | 64,450 | 169 |
| China proper | 411,770 | 80 |
| British India | 352,370 | 75 |
| French Indo-China | 34,105 | 29 |
| Philippine Islands | 12,335 | 42 |
| Union of South Africa | 8,075 | 6.6 |
| Australia | 6,501 | 0.6 |
| Nile delta | 573 | 1,584.8 |

There are a number of examples of sudden increase of population in the course of but a few decades, a process which in former ages took centuries. The fact that in Java such a development was possible without profoundly affecting the social structure of the native society is to be accounted for by the peculiar social problems of a tropical colonial organization.

The increase in the density of the population in Western Europe during the second half of the last century and the beginning of this one went hand in hand with an increased productivity of human labor, resulting from the fact that the industrial revolution made itself more and more felt.

In the initial stages of this industrial change very little was to be noticed of any more rapid increase of the population, despite

the higher production capacity. It is very probable that England in the second half of the 18th century could not have developed so rapidly along industrial lines had not the agrarian crisis prevailing at the time caused thousands of farmers and agricultural laborers to be reduced to beggary. This small fry was unable to compete with the large agricultural estates. To this must be added that the growing textile industry deprived them of their principal additional earnings. Most of them, therefore, sought refuge in the cities.

It was not until the brakes upon the increase of the population had loosened somewhat; when unfavorable labor conditions, unsanitary factories, unhygienic housing, excessive infant mortality, diseases, poverty, and moral deterioration for which female labor and child labor were mainly responsible, had been overcome; and when modern notions concerning labor conditions began to penetrate the people's consciousness, that the curve denoting the expansion of the population moved steeply upward.

In England and Wales the population increased from 10.16 million in 1811, to 22.71 million in 1871, an increase the percentage of which was more than twice that of Europe, and which manifested itself chiefly in the industrial centers.

The demographic development in the countries of western Europe was part and parcel of the structural evolution that affected every aspect of the social structure.

Also in Japan the great increase of the population went hand in hand with radical changes in the economic composition of society. Up to the second half of the 19th century the Empire was practically isolated from the rest of the world. This deliberate isolation made it impossible in times of famine to import food from abroad. Thus each district was left to its own devices, so that within each section the arable land had to be planted with food crops, even though other crops would have been much more suitable to the soil. The farmer was not at liberty to sell his land, which made it impossible



A typical group of Javanese Colonists assembled in readiness to depart for new homes

for large agricultural domains to come into existence. No efforts were made to improve the methods of tilling the soil, because it was forbidden to apply other than the customary methods.

Most likely also another factor was involved, namely, that in Japan the agrarian possibilities from an absolute point of view are very limited, so that the country had to wait for its industrial development in order to enable the population to expand to any great extent.

In a densely populated country such as Japan conditions favor the development of handicraft into an important source of income. But such development was impeded by the prevailing economic barriers, and also by all sorts of regulations and prohibitions.

The great change dates from the second half of last century, after the Empire had been re-established. When in 1853 an American squadron visited Japan the leaders of the people began to realize that, if their island empire were to be saved from becoming an object of the thirst after expansion on the part of the western powers the social and political structure of the country would have to be entirely revised.

The effect of the new regime upon the expansion of the population became rapidly noticeable. By 1870 the number of inhabitants had increased to about 33 millions, in 1895 it amounted to 42 millions, and in 1910 it already exceeded 50 millions.

The quinquennial census instituted in 1920 shows the following totals :

| | | | | | | | |
|------|----|----|----|----|----|----|------------|
| 1920 | .. | .. | .. | .. | .. | .. | 55,963,053 |
| 1925 | .. | .. | .. | .. | .. | .. | 59,736,822 |
| 1930 | .. | .. | .. | .. | .. | .. | 64,450,005 |
| 1935 | .. | .. | .. | .. | .. | .. | 69,254,148 |

It is noticeable that the increase of the population in Japan is to be attributed primarily to the greater birth rate, whereas in western countries it is to be ascribed to a decline of the mortality figure. This phenomenon has given rise to the supposition that the Japanese nation as such is particularly prolific. The highest birth rate ever reached in Japan is 36.2‰, in 1920 ; in the other years from 1903 onwards it lies between 32 and 35‰.

The birth rate in England in 1880 was about 34‰, and in Germany in 1904 it was also approximately 34‰. In 1932 the birth rate in Japan was 32.16‰. In Java it is more or less 38‰.

In England and Wales the population increased by 100 per cent between 1800 to 1851, and by 82 per cent between 1851 and 1900. In Japan the population increased between 1872 and 1922 by 78 per cent, and between 1872 and 1935 by 99 per cent.

These comparative figures indicate that there is no reason to assume any exceptional fertility of the Japanese people. The increased birthrate must be attributed rather to the cessation of measures to limit the number of children. It had become a civic duty to rear large families. The annual birth surplus in the decade 1870-1880 averaged 5‰, in 1880-1890 7.6‰, in 1890-1900 10‰, in 1900-1910 12‰, in 1910-1920 13‰, and in the period 1930-1935 it averaged 14.4‰.

From a demographic point of view there is hardly any fundamental difference between the evolution which has proceeded in Japan in the course of the past 75 years and that of the highly industrialized countries of western Europe during the same period. Also with reference to Japan there exists a close relationship between the increase of the population, the growth of the productive capacity, and the transition of the social structure to a new stage of development.

As regards Java the problem must be formulated differently. During the 18th century the population of Java seems to have remained practically stationary. Engelhardt in 1802 estimated the number of inhabitants at about 3.5 million. According to the census instituted by Raffles in 1816 it seems to have been almost five million. In 1845 Bleeker estimated the number of Java's inhabitants at 9.4 million.

According to the figures published by the Census Bureau in Batavia the increase of the native population of Java and Madoera was as follows :

| TABLE II. | | | | | | |
|-----------|----|----|----|----|----|---|
| Year | | | | | | Number of inhabitants |
| | | | | | | Average annual increase in the intermediate periods, in percentages |
| 1815 | .. | .. | .. | .. | .. | 4,499,250 |
| 1845 | .. | .. | .. | .. | .. | 9,374,477 |
| 1860 | .. | .. | .. | .. | .. | 12,514,262 |
| 1870 | .. | .. | .. | .. | .. | 16,233,100 |
| 1880 | .. | .. | .. | .. | .. | 19,540,813 |
| 1885 | .. | .. | .. | .. | .. | 21,190,626 |
| 1890 | .. | .. | .. | .. | .. | 23,609,312 |
| 1895 | .. | .. | .. | .. | .. | 25,370,545 |
| 1900 | .. | .. | .. | .. | .. | 28,396,121 |
| 1905 | .. | .. | .. | .. | .. | 29,978,558 |
| 1920 | .. | .. | .. | .. | .. | 34,428,711 |
| 1930 | .. | .. | .. | .. | .. | 40,891,093 |

Assuming that the native population in the year 1935 has increased to about 43 million, then the increase in the period 1870-1935 would be ± 160%, an increase which exceeds by far the increase of the population of Japan over the same period (± 98%), or that of England in the course of the first half or second half of the past century.

Of the native population of Java and Madoera in 1930 about 3.1 per cent inhabited the larger cities, 4.3 per cent the smaller towns, and 92.6 per cent the countryside.

The cities, formerly residences of princes and purely non-productive communities, have developed into commercial centers. The urban industry as a production factor has hitherto been of only subordinate significance. The great mass of the increasing population remained dependent for its subsistence upon agricultural pursuits and its native industries. In a simple agrarian commonwealth such as that of Java the density of the population, if left to itself, will remain fairly constant. Any regular increase of its inhabitants will be compensated by the cultivation of hitherto uncultivated soil.

If the possibilities of expansion have become exhausted, and if nevertheless the population increases, then either the standard of living will become lower, or else new sources of production will be found, such as will increase the productivity of human labor.

It is not merely the density of the population, but also the measure of legal security, the safety of person and property, the care for spiritual and material well-being, that are related to the level of development attained by any social order.

Inadequate legal safety, the insecurity of persons and of property, internecine wars, conditions and habits that defy even the most elementary notions of hygiene, the untrammelled spread of endemic diseases, a high infant mortality, etc., are all of them correctives on the part of primitivity to the increase of the population. But it is exactly such correcting



Children of Javanese colonists quickly adapt themselves to their new homes



Cleared forest areas remain covered with fallen trees and branches



Colonists leave clumps of trees while clearing land to provide shade

factors that constitute a reason for modern Governments to intervene. The Netherlands authority, by enhancing the individual's legal security, by maintaining peace and order, by the care for the public health and the spreading of at least elementary notions of hygiene, has weakened the braking power that kept the increase of the population within certain limits, without arousing the opposing forces which in a modern social structure reduce the increase of the population.

It has indeed immeasurably advanced the total of well-being, but it has also called into existence a problem that long since would have become acute had not another factor of western origin come to its aid to rouse to productivity, in co-operation with capital, the greater labor that had become available.

Within the limits of the native social structure it became possible to neutralize at least a proportion of the increase of the population by the cultivation of large areas of virgin soil, the increase of the productivity of grounds already under cultivation, the construction or improvement of irrigation works, the intensification of agriculture by the planting of better varieties and commercial crops, and the improvement of the structure of the soil. A considerable proportion of the excessive labor capacity was absorbed by the European agriculture for export. Especially the sugar and tobacco cultivations are highly intensive with reference to labor, seeing that they provide employment to hundreds of thousands of hands.

It is due in large measure to the influx of western capital, to the opportunities afforded to western enterprise and western capacity of organization that in a country like Java, with an excessively dense population, the native population prior to the recent crisis years had been assured of a standard of living that was beyond any that could have been attained in those periods when the density of the population had been so much less.

This development may be briefly summarized as follows: On the one hand a primitive social structure based upon a primitive agriculture subject to outside influences that threaten to disturb its equilibrium by the possibility of an increase in the population far exceeding the absorption capacity of the prevailing social structure; and on the other hand an element, also of foreign origin, which is in a position to direct and apply a part of the greater labor capacity so that the collective productivity is enhanced to such extent that, in spite of the increase of the population, the standard of living can be raised to a higher level.

When the economic crisis came the vulnerable points of those agricultural enterprises entirely dependent upon the export possibilities made themselves painfully felt. As a production factor they were largely eliminated for the time being. In those parts of Java where the economic life was most closely interwoven with the sugar industry the native population was deprived to a very great extent of its monetary income. What had been a financial economy now became a production economy. Numerous unemployed of the cities and the factories, and contract coolies dismissed from the estates in Sumatra East Coast, returned to their

native village where the communal sense of their fellow villagers was put to a severe test. The local market prices of the domestic crops participated in the general decline, so that all obligations payable in cash exercised an altogether disproportionate pressure upon the budget of the native farmer. The native industry withered. The population problem, long since contemplated, now became acute; its various aspects were more serious than elsewhere by reason of the one-sided agrarian orientation that did not cease to characterize the native world.

The crisis urgently required a rapid application of such measures as could alleviate the situation. This relief it was endeavored to bring about in two ways:

1. by applying a complex of economic measures aiming at the betterment of the natives' subsistence, including also:

- (a) industrialization, by establishing non-agricultural undertakings, based on western methods, primarily intended to manufacture products that hitherto had to be imported, thus providing employment to European unemployed and to native-skilled labor; this is of importance to the rural population to the extent that the newly established industries obtain their raw material from native sources of agriculture or manufacture;
- (b) industrialization by stimulating native industries through the introduction of improved working methods and the finding of new markets;
- (c) the enhancement of the productiveness of native agriculture;
- (d) (indirectly) an information service with reference to domestic and foreign trade possibilities;

2. by emigration to agricultural colonies.

The methods employed to increase the productivity need not be discussed here. We shall confine ourselves to the subject of agricultural emigration. In the course of the last few decades of the past century attention was directed to the rapid increase of the population of Java, and in connection therewith it was considered desirable to transfer Javanese farmers to the Outer Provinces.

The problem of such native colonization became an object of study in the first few years of this century, with the result that in 1905 the first colonization experiment was tried out in the Lampong Districts of Sumatra. In November of that year the first colonists, from Kedoe, left for their new homes, and in 1906 and 1907 this trial was extended to a few other territories. The Javanese settlements in the neighborhood of Gedong Tataan towards the end of March were inhabited by 3,100 colonists. In the course of 1911 a credit institution, the Lampong Credit Bank was established in the Residency of the Lampong Districts, whose purpose it was to advance the agricultural colonization by means of granting credits. The bank manager was also appointed the leader of the colonization. Before leaving their home in Java each head



The site of a colony in its beginnings after site for village has been chosen



Fields of rice and seed plants on a recently opened area with tree stumps in ground

of a family was given a premium amounting to f22.50. Upon arriving in the Lampong Districts he was enabled to draw an advance not exceeding f200 on which he had to pay 9 per cent interest. In addition he could contract other loans for the purchase of ploughing-cattle, agricultural implements, etc.

The experiments made in this direction prior to 1928 had demanded an outlay of f3,650,000, not including the amounts spent on irrigation improvements. An amount of f3.5 million had been spent on the successful colonies in the Lampong Districts. The two settlements at Gedong Tataan and Kota Agoeng at the end of 1927 contained 21,000 and 3,300 inhabitants, respectively, which amounts therefore to f144 per individual or to f576 per family, counting the average family as consisting of four persons.

When in 1931 a Colonization Report contains a paragraph to the effect that certain colonists have applied for aid in bringing their families from Java because they need additional hands to bring in their harvest, it attracts the attention of the Advisor for Agrarian Affairs. The Resident of the Lampong Districts is asked to what extent the desire prevails to bring in family members, with the result that a long list of names is presented of people whom it is requested to send out. The colonists are prepared to provide the new arrivals with food and lodging in return for their services, until they shall have been able to settle as independent farmers.

When it becomes evident that a good many of the family members whose names had been listed have died, or are not prepared to go to Sumatra, the colonists are asked whether they are willing to take in others not belonging to their family upon the same conditions. The answer is in the affirmative. And thus a new batch of colonists leaves for the Lampong Districts in 1932. In making propaganda for this scheme the services were employed of a successful colonist who had travelled to Java to induce the members of his family to join him in the Lampong Districts.

The population of Gedong Tataan after having been colonized there for something like 24 years had reached a total of 27,000. In 1932 this population within a few months' time increased by 24 per cent. In the course of that year endeavors had been made to find a new territory for colonization on a somewhat larger scale, and this was found in the neighborhood of Soekadana. During that same year 300 families formed a new nucleus of a colonization, and already in 1933 they declared that they were prepared to harbor new colonists. In 1934 the new arrivals amounted to 1,375, and in 1935 and 1936 their number increased by about 12,500 each time. In the course of 1931 also a group of victims of the outburst of the Merapi were transferred to Perbo in Bencoolen.

In 1931 and 1932 a territory in the neighborhood of Bencoolen, called Pelalo, near Tjoeroep, was entirely occupied by colonists from Blitar. From the very first all these colonists relied upon their own resources. In 1933 eighty families emigrated to a terrain near Perbo, and in 1934 and 1935 respectively 300 and 400 families moved there. A group of 200 families founded a settlement in 1935 in a territory not far from the railway Tebing

Tinggi—Loeboek Linggau, at which place in 1936 fully 150 families joined them.

The experience gained in the past several years justifies the expectation that a systematic agricultural emigration on a significant scale will be possible provided certain fundamental principles are adhered to. The system applied since 1932 relies upon the readiness of colonists already settled in prospering colonization centers to take care hospitably of newcomers who will repay such hospitality in terms of labor.

The harvest yields of the newly tilled soil are abundant, but they demand a considerable amount of labor within a short period, especially of the women. It has proved to be impossible to gather the harvest without outside assistance, so that the help on the part of new colonists is eagerly accepted, the older settler being readily prepared to provide the late arrival with temporary quarters and to let him earn something besides. With these earnings the newcomer must try to manage until the first yield from his own piece of ground. Wherever special circumstances demand it he will also be supplied with food, and with dried palm-leaf roofing for his habitation. But all Government assistance is limited to a minimum.

The point of departure of the new system is the forming of prosperous colonization nuclei in regions with a sufficient area of satisfactory soil to take care of a large number of Javanese farmers. In order to form such nuclei it is necessary that there are available irrigable grounds, and this primarily for the reason that thus one can be sure that such centers will exhibit the required economic stability. If such a nucleus is to satisfy the requirements expected of it by this new system of colonization it must be able year after year to absorb additional colonists. For it must be understood that irrigable grounds offer more certainly for obtaining an adequate native food crop than do dry grounds. If the colonization, therefore, is to succeed it is of the utmost importance that irrigable grounds be available. Moreover, the prospect held out to the native farmer that ultimately he will own his own sawah is to him a very attractive proposition.

Thus it becomes possible to select out of a large number of applicants those who are most fit for this colonization, that is to say the real farmers. And this is of great importance if the nucleus is to be a thoroughly efficient agricultural community the members of which sense their kinship with the soil, and within which a strong feeling of mutual interest makes it possible to provide the requirements of the community by means of mutual help and assistance. The nucleus must develop into a model colonist community which will set an example to those that come later.

The establishing of such a nucleus is fairly costly. The first arrivals will have to be housed and fed with Government aid during the first few months. They must be provided with implements; the construction of irrigation works and of roads requires a considerable outlay; the village areas must be laid out, etc. The initial expenditure incurred will also benefit the later arrivals, to the extent that such area will be able to accommodate them, and

this in turn will be dependent again upon the available acreage. The greater the possibilities of expansion of the nucleus, the less the cost per colonist of such agricultural colonization.

For the success of the colonization it is necessary that only such families be admitted whose existence during the first few months of their sojourn in the colony is not burdened by a large number of *young* children. In practice it has been found that the presence of more than two very young children who still demand the full attention of their parents, signifies too great a handicap. Also unmarried men, unless they pertain to the emigrating family, and old contract coolies, are refused. In recent years a medical inspection precedes the acceptance. Farmers whose physical condition is such that it is evident that they cannot cope with the hard work of clearing the land, people who are psychically abnormal, those who suffer from endemic diseases such as trachoma, etc., are rejected.

The fact that f3 million was set aside, out of the Netherlands Welfare Fund, for the promotion of native agricultural colonization has provided occasion to extend more widely the search after satisfactory colonization areas and the establishing of colonization nuclei. The Central Commission for Native Emigration and Colonization, founded in the beginning of the year, and whose Chairman is the Hon. J. H. B. Kuneman, Member of the Council of the Netherlands Indies, was organized in such manner that it formed a practically independent organization.

In the system now being pursued the rapidity with which the emigration can be accomplished is limited only by the capacity of the already existing colonization centers to absorb new arrivals. The activity of this Central Commission, therefore, is directed primarily towards the establishing of new centers.

To the extent that the number and the size of these nuclei increase a greater number of families can be transferred year after year. Also an intensive propaganda will have to be carried out, in order that the willingness on the part of the Javanese farmers shall not lag behind the absorption capacity of the colonization regions. Besides the group-colonization there is also family colonization. People with reference to whom it has been ascertained that their friends or their families already established in the colonization regions are willing to have them come out and provide them with lodging upon their arrival and with assistance for a while, may emigrate at any time throughout the year and at their own convenience, at Government expense.

Agricultural colonies of Javanese farmers may prove to be very useful in connection with solving another important problem, a problem that perhaps is less urgent than the population problem of Java, but that nevertheless demands more and more attention. The cultivation of the soil in the Outer Provinces for the most part still remains in the stage of the so-called shifting cultivation ("ladang"). Wherever the soil, after a few years, shows signs of exhaustion and begins to yield less, the population will look for new areas and will burn down a part of the forest so as to make them available.

The Outer Provinces have a very extensive forest reserve; but a portion of this forest has little agricultural value, whilst

another portion again extends over swamps, or else over ground that is very accidented. The native population in the Outer Provinces has increased from about 10 million in 1890 to 13.87 million in 1920, and to 18.25 million in 1930. This increase figured in percentages is about equal to that of the population of Java over the corresponding period, which raises the question whether it would not be wise to take measures even now to avoid, if possible, the almost insurmountable difficulties that elsewhere present themselves through a far-reaching devastation of the soil. It may prove to be necessary to teach the population now practising this shifting cultivation to adopt other cultivation measures that ensure a constant regeneration of productive soil. In some regions of the Outer Provinces such development may have to be condensed into as many decades as it has taken centuries in Java.

The multifarious problems that present themselves in this connection need not be enlarged upon here. We shall content ourselves to point to the useful influence exercised upon this evolution by the presence of colonies populated by farmers who by their very origin are familiar with the application of methods of permanent cultivation.

And in this manner such agricultural emigration, besides helping to solve the population problem in Java, may also become of considerable importance for the solution of the demographic problems that in the future will undoubtedly be presented by the Outer Provinces. A comparison of the number of inhabitants that annually emigrate from Java, with the increase of the population of this island, which may be put at say 600,000 per annum, may readily lead us to underestimate the results obtained in connection with agricultural colonization, especially in regions that had suffered most from the economic crisis. Such emigration, indeed, signified a local relief.

In order to counteract a population increase of 600,000 souls per annum by means of emigration it is necessary that 600,000 individuals emigrate every year. By withdrawing from the population adult men and women one does not only decrease the number of inhabitants but also the energy of procreation. According to the calculations made by the Central Bureau of Statistics the population of Java—always assuming that the birth surplus of the past 15 years, amounting to 1½ per cent, remains stationary—in the year 2000 will, without emigration, reach a total of 116 million (which would be 879 per square kilometer, or 1,487 per sq. kilometer of the useful agricultural area). At an annual emigration of 120,000 families consisting of father, mother, and child, the age of the parents being put at between 15 and 24 years, the total population in the year 2000 would not exceed 57 million.

These figures undoubtedly prove that the agricultural colonization of the Outer Provinces by Javanese farmers may represent an exceedingly important contribution to the solution of the most vital problem now envisaged by the Netherlands Indies.

Countries whose population problem is far less acute than that of Java are clamoring for greater expansion. There is still adequate space within the Netherlands Indies for this country to solve its demographic difficulties within its own borders. It requires this space, and uses it.

METALS FROM CHINA

From South China are exported two-thirds of the world's supply of tungsten ore and seven-tenths of its antimony supply. Both metals are needed in armament production. Tungsten ore provides a steel alloy that remains hard even at red heat: it is used in making gun tubes, armor plates, aeroplane valves, and similar important products. Antimony is used as an alloying element with base metals, especially lead, and is employed on account of its hardness for rifle ammunition, shrapnel, and accumulator plates used in aircraft tanks and other transport.

The above will indicate the kind of problem that has arisen through the Japanese invasion of South China. Most of the antimony—nearly 95 per cent—of China comes from the province of Hunan, with Changsha as trading center, which is likely to fall to the Japanese forces in the next few days.

Before the present war, the antimony was shipped through Shanghai, but, in the past fifteen months, it has been sent through Hongkong—the one now occupied, the other cut off from its hinterland.

Tungsten is produced almost entirely in the southern provinces of Kwangsi, Kwangtung and Yunnan. Exports have lately been sent mainly by rail through Haiphong, in Indo-China.

In the first eight months of this year China exported 100,463 quintals of tungsten ore, compared with 128,491 quintals in the corresponding period last year. Of antimony in all forms 68,846 quintals were exported, compared with 103,108 quintals.

In spite of the curtailed supplies, no shortage has yet occurred, and the market price for the two metals, which sharply raised last autumn, fell back during the current year. No doubt the Chinese Government, which holds a State monopoly on the output and, export of these metals, will make every effort to keep up shipments if only because these are exchanged against munition supplies from some of the large foreign armament concerns. It is equally certain that Japan will try to obtain control of the main centers of production with the least possible delay. In that event, a shortage may well develop that would throw a heavy task on the designing departments of armament firms of many countries.

Coal Liquefaction Industry

(The Oriental Economist)

COAL liquefaction began to claim national attention only a few years ago, and it did not attain the dignity of a state policy industry until the Spring of 1936. Since then, however, its development on a commercial scale has been pushed in real earnest. As long ago as 1921 the Naval Fuel Depot started experimenting on coal liquefaction by a direct method, and by the autumn of 1931 a process was evolved by which actual production on a semi-commercial scale has been successfully carried out. In 1936, with the support of the Navy Department, the Japan Nitrogen Industry Company started the construction of a 50,000 metric ton plant at Agochi, Chosen, and the South Manchuria Railway Company followed suit by locating a 30,000 ton factory in the coal fields of Fushun. Work on both plants has progressed as scheduled and they will be ready for operation sometime this year.

The Naval Fuel Depot is not alone in conducting experiments on liquefaction, for valuable studies of this important subject have been made by the research organs of the Commerce and Industry Department, the Imperial Universities of Tokyo and Kyoto, and others, but to date the process perfected by the Naval Fuel authorities stands out as by far the most practical and effective. In 1936 the Mitsui Bussan Kaisha began building a 30,000 ton plant at the Miike coal field in Omuda, Kyushu, which is owned by the Mitsui Mining Company, with the intention of producing oil by the Fischer patent process to which Mitsui Bussan has purchased rights.

During deliberations at the 71st session of the Diet, the Government announced that it had formulated a plan for producing a million metric tons each of gasoline and heavy oil a year, under a seven-year program, by means of coal liquefaction. At the 72nd session of the Diet this program was shortened to five years and its objective altered to an annual output of 3,700,000 metric tons of oil, of which 2,000,000 tons would be produced in Japan proper, Chosen and Taiwan, and the remaining 1,700,000 tons in Manchoukuo. The original seven-year program called for 1,000,000 metric tons production in Japan proper, 200,000 tons in Chosen and Taiwan, and 800,000 in Manchoukuo. The motive for speeding up the program was, of course, the wartime requirements following the outbreak of the Sino-Japanese hostilities. In response to the Government's call, several industrial firms have launched coal liquefaction schemes of their own, and in addition to the many "artificial petroleum" companies already in the field, the idea has been taken up also by a number of fertilizer makers, gas producers, and iron and steel companies, among which the Imperial Fuel Company was the first to announce its plans.

Because of the close relation which exist between coal liquefaction on the one hand and iron and steel manufacture, gas production and nitrogen recovery on the other, firms in the latter industries naturally were the first to manifest an interest in producing oil from coal. In fact, the Ube Nitrogen Company some time ago built a 100,000 metric ton low temperature carbonization plant close to its main nitrogen factory. The Sumitomo Chemical Industry Company is already operating a coal-tar process plant to produce benzol and toluol which are supplied to the market, and it is widely believed that this firm plans to establish a full fledged liquefaction plant, probably based on the Fischer process. Nissan Chemical likewise proposes to launch a project based on a direct liquefaction method, which envisages a plant, located at Wakamatsu, capable of producing 100,000 metric tons a year.

In the steel industry, Showa Steel Manufacturing has a scheme for obtaining benzine from producer gas by a Fisher process, with an ultimate goal of 200,000 metric tons of fuel oil annually. The Nippon Steel Tubing Company has a similar plan for producing 10,000 metric tons of benzine a year and has already placed orders in Germany for the necessary machinery and equipment. Certain other steel firms have been authorized by the Government to expand the scope of their contemplated coal liquefaction projects on condition that they install equipment for the carbonization of low temperature tars. Gas utility firms are also evincing interest in the liquefaction industry. Toho Gas has organized a ¥15 million enterprise under the name of the Toho Chemical Industry Company, and work has been started on a plant for the carbonization of low temperature tars which will consume 10,000 metric tons of coal

a year. The Tokyo Gas Company has a project of an almost identical character.

The semi-governmental Imperial Fuel Company, with capital stock of ¥100 million of which ¥10 million is paid up, is a leader in the field, having adopted a ¥70 million oil-from-coal project with plants to be located at Rumoye and Takikawa. This enterprise will be organized under the business name of the Hokkaido Artificial Petroleum Company, and it is intended to develop an annual production of 100,000 metric tons in the early stages of its career. The necessary capital will be furnished by Mitsui, Mitsubishi, Sumitomo, the Hokkaido Colliery and Steamship Company, and wealthy residents of the locality in which the factories are to be located.

On the other hand, the liquefaction enterprises already organized have not been making as rapid progress as was expected, and it now appears that most projects will face a delay of half a year to a full year in commencing active operations. The difficulties entailing this delay, both physical and technical, are unavoidable. Machinery and equipment are hard to obtain, at least in the stipulated time, while some technical problems that remain to be solved have complicated the situation. Early plans called for the production during 1937 of 21,000 metric tons of benzine and the same quantity of heavy oil from plants using a direct hydrogenation method alone, but as a matter of fact, not a drop of oil has yet been obtained.

Actual production, however, does not seem to be very far distant now. The Agochi plant of the Chosen Coal Industry Company and the Fushun plant of the South Manchuria Railway Company will be ready to start operating within the next couple of months, and before the end of this year both the Omuda plant of the Mitsui interests and the Manchuria Coal Liquefaction Company's Szepingkai works are expected to begin producing, at least on a partial scale. All in all, there is good ground for hopes that in 1939 the country will produce as much as 300,000 metric tons of oil from coal, and all producers have adopted schemes for a further expansion of their capacity. The production programs of the Manchurian firms are especially ambitious. Manchuria Coal Liquefaction plans an annual production of 250,000 metric tons of crude oil, Manchuria Synthetic Oil 250,000 metric tons, and the S.M.R.'s Fushun plant 360,000 metric tons, while the Shulan Liquefaction project aims at a 100,000 metric tons production and the Holung Liquefaction scheme at 50,000 metric tons.

When the original seven-year program is achieved, the amount of coal required for oil production alone will be 8,870,000 metric tons, and including coal needed for steam raising and other purposes, the annual requirement for liquefaction activities will be ten million metric tons. On the basis of last year's coal delivery at the pits, which was 46 million metric tons, the liquefaction consumption would account for 21.74 per cent. Consequently the coal deposits in Manchoukuo and North China, and especially of Shansi, may play an important rôle in the coal hydrogenation industry of Japan. The resources of Manchoukuo are estimated as 20,000 million metric tons and those of Shansi alone at 130,000 million metric tons. The latter deposits in particular are reputed to contain coal suitable for liquefaction which is available at prices ranging from ¥3 to ¥5 a ton at the pit as compared to ¥18-¥19 a ton in Japan proper. It is logical that North China will have its own liquefaction plants at some time in the future.

Coal requirements thus offer no obstacle whatever to the liquefaction enterprise. The greatest single difficulty faced at present is in obtaining a supply of machinery and equipment, which command high prices. Moreover, the cost of production is high and in order to give the industry proper protection, the Government will have to raise the price of petroleum products still further and thereby increase its financial burden.

The future of the domestic coal liquefaction industry does not promise to be easy sailing by any means, but in the present situation Japan is compelled to go ahead with the task of developing it regardless of the difficulties, and to this end everyone concerned, both government and people, is prepared to pay the necessary price no matter how high it may be.

India's Gold Mines*

As is generally known, most of the gold produced in India in recent times has come from the Kolar Gold Field in the Mysore State. The Kolar Gold Field is situated about 125 miles west of the port of Madras, and lies on a plateau 2,800-ft. above sea level. Although the existence of ancient workings in this area was known as far back as 1802, mining operations, using modern methods, did not commence until the early 'eighties. From that time to the present, the opening up and development of the various properties has been in the hands of the well-known firm of mining engineers, John Taylor and Sons.

This firm, although interested in mining properties in other parts of the world, has chiefly confined its attention to work on the Kolar Gold Field, which, under its able and efficient management, has been for many years one of the most productive gold-fields in the British Empire. The Kolar Gold Field has become famous for its remarkable lode values, and the mines, year after year, have continued to go deeper, while at the same time, by continual improvements in the methods of mining, the necessary increase of cost has been offset. The steady progress over so many years has not altogether been due to uniformity in the average payability of the lode, but partly to the extensive exploratory work which has been accomplished, and which, on numerous occasions, has passed through lean zones hundreds of feet deep in the search for fresh ore-shoots to take the place of those being mined.

An outstanding feature of the Indian gold mines is their great depth. The two central mines, the Ooregum and the Champion Reef, rank amongst the deepest mines in the world, and it is a tribute to the excellent work of the staff that, considering the increasing depth of the mines, the working costs per ton crushed have remained at a moderate figure.

The Mysore Mine

This mine holds the premier position of the group operating on the Kolar Gold Field, and its record has been one of outstanding success, while it still continues to earn satisfactory profits and pay good dividends. Some years ago, it was decided to embark on a program of deeper development, and during the subsequent period, additions of payable blocks to the reserves have resulted from further exploration of areas in the higher levels, and from some of the deep development points, while it has been found possible to contribute substantially to the monthly returns of gold by mining quartz of lower grade, not included in the estimates of the reserve.

During 1936, the 57th in the history of the Company, 96,645 ozs. of fine gold were produced from 203,739 tons of ore milled and treated in the reduction works, and 547 ozs. were recovered from auriferous slags, making the total return of fine gold 97,192 ozs. The profit on the twelve months' operations was £251,999, which was £2,450 less than that of the preceding year. The total distribution for 1936 was 27½ per cent, the same as for the preceding year. It is interesting to note that the Mysore has paid over £11,000,000 in dividends. Compared with 1935, the working costs, in the aggregate, showed an increase of £14,933 which was due, to a large extent, to the greater amount of development work. The cost per ton milled, excluding development, worked out at 30s. 8½d., or a reduction of 1s. 7½d. The Reserve Fund was increased to £146,704 by the addition of £10,302 profit, realized on the sale of shareholdings. The Company maintained its strong financial position, and at December 31, 1936, after allowing for current liabilities, the surplus of liquid assets amounted to £279,683. The amount of development work underground during 1936 represented in 20,927-ft. of sinking, driving and rising, was 2,915-ft. more than in the previous year. The total development below the 76th Level during the year amounted to 9,131-ft., or 2,513-ft. in excess of the preceding year, and, although no great length of payable ore was exposed, it was encouraging to find that the ground appeared to be more settled and was passing out of the zone of pegmatite intrusions previously encountered.

At the 84th horizon between Edgar's Sub-Vertical and North Auxiliary Vertical Shafts, exploration work resulted in an exposure of a length of 630-ft. of ore, which, north of Edgar's Sub-Vertical

Shaft, consisted of stringers and lenticles of quartz over an average width of 11-ft. Further northwards, the lode consolidates, and a length of 125-ft. of quartz averaging 1-ft. 5-in. in width and assaying 1 oz. 1.5 dwt. per ton was disclosed. Two winzes, started to exploit this run of quartz at depth, also produced favorable results. At South Auxiliary Vertical Shaft, the lode channel encountered between the 78th and 81st levels continued in depth. At the 84th level, a length of 150-ft. averaging 1-ft. 1-in. of quartz and assaying 4.4 dwt. per ton was exposed, and, although no lengths of payable values were proved, it was satisfactory to note that the lode persisted in depth. Development in the upper levels of the mine was vigorously pursued, and was instrumental in considerably augmenting the payable reserves. Development, by means of rises and winzes on flat folds, which are characteristic of the upper levels of the mine, and the tonnage from which cannot be estimated for reserve purposes because of their formation, opened up several thousand tons of payable ore for stoping in Tennant's, Crocker's and McTaggart's Incline sections. The work of reclaiming low-grade stoping areas in Plummer's Shaft section was continued, and the substantial tonnage obtained from this source justified the reopening of this section.

The reclaiming of areas isolated by rock-bursts was also continued, and several blocks which come under the limited quantity category are now available for stoping. The reserves of ore at December 31, 1936, were computed at 440,000 tons of an average grade of 12.5 dwt., which showed an increase during the year of 18,000 tons, and a decrease of .6 dwt. respectively. There was, in addition, a tonnage of probable ore of low grade estimated at 284,000, or 1,000 tons more than at the end of 1935. During the past year, this mine produced 98,098 ozs. fine gold, and the estimated working profit came out at £271,200.

The Nundydroog Mines

Originally a comparatively small mine, the acquisition of adjoining properties from time to time, placed it second to the Mysore Mine. During 1936, 240,246 tons of ore were treated and produced 111,496 ozs. of fine gold; 54,930 tons of accumulated tailings were re-treated, yielding 2,618 ozs., making a total of 114,114 ozs. of fine gold, as compared with 111,157 ozs. for the year 1935, and 110,536 ozs. for 1934. The net profit came out at £302,285, as against £317,563 for the previous year, and the total dividend for the year was 7s. 3d. per share, equal to 72½ per cent on the capital of the Company, an increase of five per cent over 1935.

Altogether, this mine, has paid over £4,000,000 in dividends. The reserve fund for the Company stands at £107,500, while the balance of liquid assets at December 31, 1936, was £235,022. Exploratory and Development work in the mine during 1936 totalled 23,338-ft., as compared with 23,073-ft. in 1935. The ore reserves at December 31, 1936, were estimated at 581,545 tons of an average assay value of 12.31 dwt., an increase of 88,881 tons and a decrease of 1.76 dwt. in grade, compared with the figures of the previous year, while, in addition, there was a tonnage of probable ore of low grade estimated at 213,784 tons.

A satisfactory feature of the year was that the Oriental shoot, developed by the 63rd level drive north from No. 1 Auxiliary shaft, showed a decided improvement. Not only was there a tendency for the pay shoot to extend in a northerly direction, but the extent of payability on the 63rd was greater than at the 62nd level. Three shoots were exposed on the 63rd level, aggregating 530-ft. in length, and having an average value of 14.81 dwt. over a width of 30-ins. Short lengths of ore of good width and value were opened up south of No. 1 Auxiliary Shaft on the 61st and 62nd levels. On the Kennedy's Section, there was little improvement in the reef in the vicinity of No. 2 Auxiliary Shaft. At Taylor's Section, 337-ft. were driven on the 64th level, exposing quartz of good width, but generally of low value. On the 63rd level, reef width was well maintained. A length of 220-ft. averaged 63-in. in width and

assayed 8.23 dwt. per ton. Outside of this length, however, values were low or of an intermittent nature.

The 62nd level was fully developed, and proved a continuous well-defined reef for a distance of 550-ft. north and 650-ft. south of No. 3 Auxiliary Shaft. Over this distance shoots occurred which showed an aggregate length of 566-ft. averaging 51-in. in width and assaying 9.90 dwt. per ton. On the 61st level, the lode between 360-ft. and 690-ft. north of the shaft averaged 24-in. in width and assayed 1 oz. 9.92 dwt. per ton, whilst in the same vicinity No. S10 Winze connecting the 60th and 61st levels averaged 19.80 dwt. over a width of 38-in. South of the shaft, an additional 130-ft. of lode was exposed, averaging 50-in. in width, assay value 19.06 dwt. During 1937, the total gold recovered amounted to 111,951 ozs. fine gold, and the estimated working profit to £360,100.

Ooregum Gold Mining

One of the outstanding mines of the Kolar Gold Field, the Ooregum Mine, started with a production of only 42 ozs. gold in 1880, but it has yielded no less than 3,468,928 ozs. to the end of December, 1936, while the total dividends paid up to that date amounted to the grand total of £3,990,544. In the year 1936, 38,917 ozs. of fine gold were produced from 147,282 tons of ore milled and 12,243 ozs. were recovered from 249,274 tons of tailings re-treated, making a total return of 51,160 ozs. of fine gold. The profit on the year's operations was £57,592, a decrease of £3,246 compared with the results for the preceding year. The distribution for the year 1936 was 1s. 9d. per share, or 17½ per cent on the Preference, and 9d. per share, or 7½ per cent on the Ordinary shares, as against 20 per cent and 10 per cent respectively in the previous period. The cost per ton milled, excluding development, was 25s. 10½d., as against 25s. 4½d. Expenditure on development and ventilation, and some of the other departments of cost was somewhat higher, but improved methods in the reduction works effected economies in treatment costs, as well as a better extraction.

The reserve fund was increased to £83,061 by the addition of £4,061 profit realized on the sale of shares. At December 31, 1936, after allowing for current liabilities, the surplus of liquid assets amounted to £175,881. During 1936, development work carried out in the mine, in sinking, driving, cross-cutting and rising, measured a total of 13,270-ft., or an increase of 920-ft. Further development of the main lode and the west lode in Auxiliary Shaft section, in the southern part of the mine, proved very satisfactory and opened up valuable ore with the result that considerable additions were made to the ore reserves. The 85th level was reached in both the Auxiliary and Bullen's Incline shafts. Developments on the ore shoots in the southern part of the mine disclosed valuable ore on the main reef, or central ore shoot line, and also an improvement in value at the northern end of the west ore shoot at the 83rd and 84th levels.

A short but valuable lens of ore was found on the central ore shoot line in the vicinity of the Auxiliary Shaft cross-cut. This lens, which was first intersected at the 84th level, was proved to be continuous from above the 83rd level to the 85th level. Its position is considerably further north than the valuable part of the ore shoot developed in the levels above. In Oakley's and Bullen's sections, developments proved somewhat disappointing and the pegmatite intrusions which dislocated the reef channel below the 81st level were found to persist along the greater part of the 82nd level, and throughout the areas passed through by the winzes south to the horizon of the 84th and 85th levels.

The west reef in Auxiliary section was developed at the 84th, 83rd, 82nd and 81st levels. Quartz of fair width and payable value was opened up at the 81st and 82nd, which have been suspended near the south boundary. At the 83rd and 84th levels, which are now being driven at the northern end of the ore shoot, there are indications of a northward extension of the payable reef. In the area passed through by No. 7 winze below the 82nd level, the quartz width and value showed an improvement over that exposed in the levels above. The reserves of ore at December 31, 1936, were estimated at 219,624 tons of an average grade of 9.95 dwts. per ton; showing an increase on the year of 43,252 tons and .38 dwt. in grade. Apart from this reserve, there is a further tonnage of 88,874 of probable ore of low-grade payable at the present price of gold. During 1937, the total gold recovered amounted to 50,621 ozs. fine gold, and the estimated working profit to £51,400.

Champion Reef Gold Mines of India

Exceedingly rich ore-bodies were opened up on this mine in its early days, but later a poor zone was encountered which necessitated an enlarged program of development to depth. The outstanding success of the operations in this direction is well known, valuable ore bodies having been opened up in the bottom of the mine.

In March of 1936, it was decided to increase the capital of the company, and at that time it was pointed out that the mine was nearing the depth of 8,000-ft., for which the then existing shafts and machinery had been designed. As the development results and the outlook for the future of the mine continued to be highly favorable, the directors were satisfied that facilities should be provided to enable the mine to be carried down to a vertical depth of at least 10,000-ft.

For this purpose, it was necessary that steps should be taken to amplify the ventilation system, and to make alterations to the shafts and winding arrangements. The scheme decided upon comprised the deepening of Gifford Shaft, and the provision of a new electric winding engine to hoist from this depth. Second stage winding was to commence from the 70th level, where Heathcote Shaft will be connected to Gifford Shaft. The deepening of Gifford Shaft will also give the downcast ventilation air an uninterrupted path to the 70th level, from where it will pass to the bottom of the mine down Heathcote Shaft. In addition to the provision of the necessary ventilation of the deep workings, and other advantages of the new layout, there will also be ample facilities for raising a larger output of ore, and for sending down the increasing quantities of material required for supporting the workings.

The work as outlined was estimated to occupy approximately four years, and to cost £226,000. The capital was increased by £65,000 to £325,000 by the creation and issue of 130,000 shares of 10s. each offered at the price of 35s. per share, or a premium of 25s. to the shareholders in the proportion of one such share for every four shares held by them respectively. It is anticipated that, provided there is no great change in the price of gold, and no unforeseen event disturbs the normal working of the mine, the profits should enable the rate of dividend at the time of issue to be maintained on the increased capital during the period of construction, and the prospects in the mine are such as to justify confidence in the continuance of favorable results beyond that period.

During 1936, 69,470 ozs. of fine gold were produced from 142,920 tons of ore milled and treated in the reduction works. The operations for the twelve months resulted in a profit of £197,231, an increase of £27,243, compared with the profit of the previous year. The total distribution in respect of the year 1936 amounted to 4s. 6d. per share, or at the rate of 45 per cent on the increased capital, as against 42½ per cent for 1935 on the smaller capital. The aggregate of the working costs, compared with 1935, showed a reduction of £29,635, which was attributable mainly to three causes, namely: the exhaustion of the old tailings dump and the consequent saving of the treatment cost, a lower expenditure on development work, and no further addition to the stock of ore at surface. The cost per ton milled, excluding development, worked out at 28s. 0½d., or a decrease of 2s. 11½d. Development operations underground in levels, cross-cuts, winzes and rises measured 9,168-ft. during 1936, and in addition Gifford and Heathcote shafts were sunk, respectively, 1,061-ft. and 232-ft., making the total of the work accomplished 10,461-ft.

The results generally of the development operations during the year continued to be very satisfactory. In the deep levels in the north section, both the main and the west lodes showed improvement in value, and the prospects there remain distinctly favorable. In the south section, further development showed that the strength and grade of Glen ore shoot are well maintained down to the deepest working. 2,950-ft. of development were done in the north section during the year. The North Main Winze was sunk 185-ft. to 30-ft. below the 80th level. In the cross-cut West at this level, the Main Lode is folded. At the 76th, 78th and 80th levels, the development on the folds of the Main Lode is proving to be very productive, and also that these folds are increasing in depth.

On the West Lode, between the 67th and 70th levels, the ore shoot south of the pegmatite intrusion was developed and added a considerable tonnage of good grade ore to the reserves. At the 76th level, No. 1 B Winze, 660-ft. south of North Main Winze, was

(Continued on page 471)

Maritime Routes in and Through the Netherlands Indies

By Lieut. Comm. M. M. MERENS (in *The Bulletin of The Colonial Institute of Amsterdam*)

THE Dutch East Indian Archipelago often also called the Malay Archipelago is a series of islands which together form a dividing line, as it were, between two oceans and at the same time a bridge connecting two continents. This geographical position—between the Indian Ocean and the Pacific and between Asia and Australia—in combination with the physical characteristics of the area obviously predestine this Archipelago to play an important rôle in world traffic. The Netherlands Indies do not only produce many articles for the world market, but also import large quantities of foreign goods to satisfy the needs of its numerous population of 60 millions. If in addition we take into consideration all the trade routes that traverse the Archipelago, all the lines which connect Eastern Asia with Southern Asia, Europe, Africa and Australia and pass in clusters through the comparatively narrow passages between the islands, a general idea of what the Indies signify from a shipping point of view arises before the mind's eye.

Before detailing certain facts which bring out the importance of the maritime routes on this portion of the globe, it may be well to remind the reader that the statistical data on which this article is based do not present a complete picture of conditions as they are at present. For lack of more recent figures the writer has been obliged to use those reflecting the situation as it was in 1935. In this year the world depression was still developing towards its first apex and several new and in a way counteracting tendencies had not yet made their influence felt, as a glance at the figures will immediately show. For this reason our summary must be read and interpreted as a picture taken at one given moment and not regarded as an exhaustive study, comparative or otherwise.

Furthermore it must not be forgotten that the data on imports and exports as supplied by different countries show discrepancies here and there when we compare them with each other. The cause of these differences the present writer has not always been able to trace. In cases of doubt, he has for the most part used data furnished by Netherlands Indian sources.

We have divided the subject as follows :

- Sea-borne traffic in the Netherlands Indies*, that is, inter-island and inter-port trade within the Archipelago.
- Trade from and to the Netherlands Indies*, including those vessels belonging to the through traffic which call at one or more ports therein.
- Through traffic*, by which is meant those vessels which pass through the Archipelago without touching any of its harbors, and which, in fact, constitute only a percentage of the ships seen in Netherlands Indian waters.

(a) *Sea-borne traffic within the Netherlands Indies*.—The total tonnage cleared in Netherlands Indian ports during the year 1935 was as much as 130,600,000 cub.m. By far the greater part of this (77 per cent) represented Dutch or Netherlands Indian ships (34,800 vessels). Other nations contributed the following percentages to this trade : England 12.6 per cent (5,300 vessels), Japan 4.9 per cent (780 vessels), Germany 2.5 per cent (330 vessels).

The ships concerned were chiefly steamers and motor-vessels. The sailing craft—mostly native *praos*—were all less than 300 cub.m. and 99 per cent of them flew the Dutch flag. On an average these *praos* were not larger than 25.6 cub.m. and the total tonnage cleared of these in the year 1935 did not amount to more than 2,420,000 cub.m. for the entire Archipelago, which is but 1.8 per cent of the whole trade. From this we must not conclude, however, that these sailing vessels have little economic significance. As a matter of fact these little boats are made use of by the small cultivators to transport their produce to the large centers, where their cargos are picked up by inter-island or ocean steamers. On the whole these *praos* carry comparatively large crews, and therefore this trade supplies many natives with the means of making a living. Particularly the natives of Southern Celebes, the Buginese and Macassarese, are fearless sea-men and their so-called *Macassar praos*—the characteristic shape of which make them more like Henry Hudson's "Half Moon" than modern schooners—may be seen all the way

from New Guinea to Singapore, travelling Westward with the East monsoon and returning Eastward when the West monsoon breaks. Surabaya, Tanjong Priok, Banyuwangi (all in Java) and Macassar (Celebes) are the great *prao* harbors, where cargos are transhipped to Ocean steamers belonging to various lines.

By far the most important inter-insular shipping concern is the Royal Packet Company (*Koninklijke Paketvaart Maatschappij*). This K.P.M., as it is usually called, possesses a fleet of 126 vessels (270,000 gross reg.t.) and has established an elaborate network of cargo, mail and passenger connections all over the Archipelago. Mention should also be made of the Netherlands Indian Tank Steamer Company. This concern has eighteen vessels (60,395 gross reg.t.), which are constantly employed in collecting oil-products from the various fields of the Royal Shell.

Other lines, too, such as the Java-China-Japan Line, the Nederland Royal Mail, the Rotterdam Lloyd and several foreign companies, play a lively part in inter-island traffic and on account of the size of their ships contribute largely to the total of tonnage cleared. We must also bear in mind that a merchantman of 10,000 cub.m. coming from Europe and calling at Sabang, off the North point of Sumatra, then in succession at Belawan, Tanjong Priok, Semarang, Macassar for example, and on its return voyage to Europe, Tanjong Priok and Sabang again, only appears on the books once as having arrived from, and returned to a country outside the Indies, whereas it will be found noted no less than seven times under ships arriving in port in the course of its voyage along the coast. The following table shows the relative importance of the chief ports :

| Port | (Island) | Steamships and Motor vessels | | Sailing Vessels | |
|---------------------------------|-----------|------------------------------|------------|-----------------|---------|
| | | Number | Tonnage | Number | Tonnage |
| Tanjong Priok | (Java) | 2,565 | 15,196,000 | 3,712 | 107,000 |
| Surabaya | (Java) | 1,827 | 13,612,000 | 15,724 | 743,000 |
| Semarang | (Java) | 1,583 | 13,024,000 | 1,563 | 66,000 |
| Belawan | (Sumatra) | 1,510 | 8,404,000 | 1,197 | 46,000 |
| Cheribon | (Java) | 1,253 | 7,556,000 | 1,132 | 48,000 |
| Macassar | (Celebes) | 940 | 6,798,000 | 5,717 | 176,000 |
| Sabang, N. of Sumatra | | 769 | 5,825,000 | 8 | 2,000 |
| Palembang | (Sumatra) | 1,317 | 5,819,000 | 277 | 109,000 |
| Balik Papan | (Borneo) | 1,317 | 3,854,000 | 550 | 44,000 |
| Probolingo | (Java) | 437 | 3,763,000 | 2,185 | 202,000 |
| Panarukan | (Java) | 524 | 3,389,000 | 3,799 | 97,000 |
| Pulu Sambu (Straits of Malacca) | | 4,941 | 3,286,000 | 1,239 | 91,000 |
| Banyuwangi | (Java) | 656 | 2,970,000 | 3,545 | 83,000 |
| Telok Betong | (Sumatra) | 901 | 2,896,000 | 281 | 5,000 |
| Singaraja | (Bali) | 500 | 2,423,000 | 676 | 14,000 |

These figures suggest the following by way of comment :

One is struck by the fact that in the case of ships serving the oil ports the tonnage per ship is little in comparison with the number of vessels calling there. This is explained by the comparatively small size of the oil tankers on these inter-islands runs. Our table shows the oil ports of Balik Papan and Pulu Sambu, where the tonnage per ship cleared was particularly low as against a general average of 5,405 cub.m. for motor vessels and 4,440 cub.m. for steamers, namely, less than 3,000 for Balik Papan and even below 700 for Pulu Sambu.

In regard to ports on the North Coast of Java the opposite is true. These show a tonnage per ship considerably above the general average. This is chiefly due to frequent calls from large liners belonging to the Nederland Royal Mail and the Rotterdam Lloyd, the two companies which between them maintain the weekly passenger and mail service between the Netherlands Indies and the Home Country. Naturally the divergence from the average referred to above is specially marked in the case of ports of lesser importance, which are represented in our list by Panarukan and Probolinggo.

That Singaraja is included in the table is due mainly to passenger traffic to the island of Bali, which of late years has been growing more and more popular with tourists both Dutch and foreign.

Tanjong Priok—which is the harbor for Batavia, the Capital of the Indies—Surabaya and Macassar are typical transit-ports.

Here all shipping from the surrounding districts converges; products intended for export abroad are collected here and transhipped to their various destinations, while on the other hand imported cargoes are distributed from these centers after transshipment. Tanjong Priok serves, besides Western Java, a large portion of Sumatra, Western Borneo and the islands between these, whereas Surabaya is the trading center for Eastern Java, Madura, and the Small Sunda Islands, and also for Southern Borneo. The area served by Macassar includes the islands of Celebes and Halmahera, the whole of the Moluccas and New Guinea. The city of Singapore, too, plays a considerable part as transit-port and shipping center for the adjoining portions of the Dutch East Indian Archipelago.

The functions of these ports in transit traffic brings us to:

(b) *Trade from and to the Netherlands Indies.*—The figure of the tonnage cleared under this heading is 30,800,000 cub.m. When compared to the total of 130,600,000 cub.m. mentioned above, the trade from and to the Indies represents only a rough percentage of the total tonnage cleared (23.5 per cent), but we have explained already how these figures should be read. Sailing vessels may be entirely disregarded in this connection. Foreign trade is carried almost entirely by steam or motor vessels. Here the English flag plays the most prominent part (6,183 vessels or 60 per cent); then comes the Dutch (3,195 bottoms or 30 per cent); 272 ships representing 2.6 per cent sailed under the Norwegian flag, while Japan figures on the list as fourth with 264 ships (2.5 per cent).

The most important steamship companies maintaining regular services to and from the Indies are the K.P.M. (Royal Packet Company), the Maatschappij Nederland (The Nederland Royal Mail), the Rotterdam Lloyd and the Ocean Steamship Company—the well known blue funnel freighters of the last mentioned concern partly fly the English and partly the Dutch flag; the Java-China-Japan Line also deserves to be mentioned. The K.P.M. serves lines to China, Siam, South Africa and Australia; the next three mentioned above run between Europe and the Indies and also absorb the lion's share of the trade between the latter and America and India. The Java-China-Japan Line does business with the Far Eastern ports.

Besides the Dutch Companies there are one or two others worthy of mention: the Nanyo Kaiun Kabushiki Kaisha, running between the Indies and Japan, and the Asiatic Petroleum Company and Anglo Saxon Petroleum Company both of which see to the transport of oil and oil products from various harbors in chartered vessels.

The following table indicates the sea-borne trade between the Netherlands Indies and various other countries:

| Countries | Departed from Neth. Indies | | Arrived in Neth. Indies | |
|---|-------------------------------|-------------------|----------------------------|-------------------|
| | Ships | Tonnage cub.m. | Ships | Tonnage cub.m. |
| East Asia * | 771 | 5,885,200 | 964 | 8,112,900 |
| British India, Persian Gulf and Red Sea | 331 | 3,960,900 | 202 | 2,462,300 |
| Europe | 283 | 3,939,200 | 219 | 3,092,300 |
| America | 154 | 1,698,700 | 148 | 1,587,700 |
| Africa | 109 | 1,213,900 | 84 | 851,000 |
| Australia | 240 | 2,390,700 | 223 | 2,327,000 |

* The following are included under the heading East Asia: Siam, British Borneo, Cochin China, Indo-China, the Philippines, Japan, China and Siberia.

These figures include also the vessels which call at ports in the Netherlands Indies on their way but are really bound for other countries.

The importance of the position occupied by the Netherlands Indies as a producer for the world-market may be estimated from the following facts: She supplies 92 per cent of the world output of cinchona, 78 per cent of the capok, 82 per cent of the pepper, 33 per cent of all rubber, not to mention the very considerable quantities of petroleum products, sugar, cacao-nut palm products, tea, tapioca and tin.

If we examine the figures below, which present a picture of the foreign trade of the Netherlands Indies with other countries, expressed in metric tons, it becomes amply clear what the significance is of the export and import of these islands:

| Countries | Import from | Export to |
|-------------------------|-------------|-----------|
| Netherlands | 100,239 | 564,164 |
| Gr. Britain and Ireland | 70,509 | 530,826 |
| Germany | 92,818 | 105,840 |
| France | 8,258 | 139,551 |
| Belgium and Luxemburg | 58,523 | 40,174 |

| Countries | Import from | Export to |
|---|-------------|-----------|
| Italy | 4,021 | 50,669 |
| Austria-Hungary, Czechoslovakia | 6,631 | — |
| Switzerland | 1,977 | — |
| Spain | 591 | 55,682 |
| Denmark | 1,676 | 135,919 |
| Norway | 3,814 | 79,047 |
| Sweden | 9,416 | 17,617 |
| Finland | 5,924 | — |
| Poland | 931 | 303 |
| Eur. Russia | 963 | 355 |
| Balkan States | 1,143 | 2,203 |
| Other Countries in Europe | 836 | 1,183 |
| U.S.A. | 87,491 | 461,847 |
| Canada | 8,852 | 5,252 |
| Mexico | — | 14,770 |
| S. America, Am. Islands, and other parts of America | 2,103 | 5,553 |
| Arabia and Aden | 93 | 15,161 |
| British India | 134,022 | 536,098 |
| British Malaya | 3,698 | 57,991 |
| Penang | 47,698 | 108,309 |
| Singapore | 286,837 | 2,081,207 |
| Siam | 51,028 | 69,425 |
| French Indo-China | 78,567 | 48,483 |
| Hongkong | 14,546 | 410,457 |
| China (incl. Macao) | 17,810 | 380,700 |
| Dalny, Korea, Vladivostok | 13,063 | 56,643 |
| Japan and Formosa | 281,941 | 1,061,982 |
| Philippines | 1,626 | 168,557 |
| British Borneo | 56,960 | 2,614 |
| Other Countries in Asia | 2,848 | 7,079 |
| Australia and N. Zealand | 114,737 | 725,627 |
| Polynesia and Micronesia | 125 | 5,868 |
| Egypt and English Sudan | 1,312 | 271,545 |
| British East Africa | 3,950 | 19,096 |
| Union of South Africa | 12,247 | 74,078 |
| Other parts of Africa | 1,426 | 7,126 |
| Miscellaneous † | 53,626 | 1,051,572 |
| Total | 1,644,876 | 9,370,573 |

† *Miscellaneous* includes—besides goods of unknown origin or destination—the trade with the three free ports of Sabang, Pulu Sambu and Tanjong Uban; these are situated on islands or groups of Islands on the confines of Netherlands Indian territory outside the sphere of action of the Netherlands Indian Customs Service.

(c) *Through traffic*, i.e., vessels which pass through Netherlands Indian waters but do not call at any Netherlands Indian port or ports.

The volume of this traffic is naturally dependent on the trade between the areas connected by routes which pass through Netherlands Indian seas or straits. Of these routes we mention only the ones of obvious significance:

- (1) From Europe, America (via Suez) and India (via the Straits of Malacca) to the Far East and back.
- (2) from the same areas by the same passage to Australia and back.
- (3) from South America and Africa through the Straits of Sunda or the Straits of Malacca to the Far East and back, and, in the Easternmost part of the archipelago:
- (4) from Australia and New Zealand to the Far East and back.

It stands to reason that the number of ships serving these busy routes is considerable. Some of them do not, however, touch at Netherlands Indian ports, because it is more convenient for them to call at Singapore, which on account of its geographical location is closely connected with the Malay archipelago. Whatever cargoes, mails or passengers destined for, or coming from, the Netherlands Indies these ships carry, are dropped or picked up at Singapore instead of at one or more Netherlands Indian ports. The harbor movement at the great emporium off the Southernmost point of the Malay Peninsula is shown by the following table:

| Port of Singapore | Number of Vessels | Gross tonnage |
|------------------------------|-------------------|---------------|
| Vessels of more than 75 tons | | |
| under British flag | 2,416 | 5,145,899 |
| under foreign flag | 4,383 | 9,993,636 |
| Vessels of less than 75 tons | 16,496 | 632,003 |

Herewith we conclude our survey of the three aspects of our subject. But we append an additional table illustrating another point. The figures which appear therein may serve to give the reader a general idea of the sea-borne traffic between the Netherlands Indies and the rest of the world in terms of nations and their several shipping interests.

ARRIVAL OF SHIPS AND VESSELS, IN THE NETHERLANDS INDIES DURING THE
YEAR 1935, ARRANGED ACCORDING TO NATIONALITY (STEAMSHIPS
INCLUDING MOTOR VESSELS).

| Flag and Steamship Company | Traffic with foreign countries | | |
|--|--------------------------------|------------|--------------|
| | Number | cub.m. net | cub.m. gross |
| <i>The Netherlands Indies</i> | | | |
| Koninklijke Paketvaart Mij. | a 1,746 | 5,093,181 | 8,575,672 |
| Java-China-Japan Lijn | b 4 | 763 | 1,700 |
| Bataafsche Petroleum Mij. | a 81 | 1,147,336 | 1,839,829 |
| Nederlandsch-Indische Tank-Stoomboot Mij. | b 174 | 63,074 | 120,969 |
| Nederlandsch-Indische Tank-Stoomboot Mij. | a 132 | 22,948 | 45,372 |
| Nederlandsch-Indische Tank-Stoomboot Mij. | b 36 | 71,402 | 123,171 |
| Thong Ek Steamship Co. | a 34 | 34 | 18,292 |
| Nederlandsch-Indische Steenkool Handel Mij. | b 50 | 86,500 | 175,250 |
| Nederlandsche Koloniale Tankvaart Mij. | a 4 | 230 | 1,023 |
| Others | b 11 | 1,045 | 1,903 |
| <i>The Netherlands</i> | a 324 | 206,343 | 366,953 |
| Maatschappij Nederland | a 124 | 2,435,876 | 4,060,496 |
| Rotterdamsche Lloyd | a 121 | 2,097,954 | 3,444,597 |
| Java-New York Lijn | a 50 | 654,576 | 1,063,227 |
| Silver-Java-Pacific Lijn | a 40 | 497,672 | 801,793 |
| Maatschappij Oceaan | a 23 | 250,713 | 405,885 |
| Nederlandsch-Indische Tank-Stoomboot Mij. | a 188 | 836,777 | 1,637,192 |
| Nederlandsche Koloniale Tankvaart Mij. | a 26 | 127,524 | 217,596 |
| Petroleum Mij. La Corona | a 23 | 178,788 | 309,682 |
| Anglo Saxon Petroleum Co. (chart.) | a 1 | 2,912 | 5,911 |
| Asiatic Petroleum Co. (chart.) | a 1 | 2,912 | 5,911 |
| Others | a 2 | 17,776 | 28,898 |
| <i>British Empire</i> | | | |
| Ocean Steamship Co. | a 32 | 371,216 | 597,087 |
| China Mutual Steam Navigation Co. | a 8 | 95,183 | 152,905 |
| Shipping is here classified under two heads: | | | |
| a. Ships of 300 cub.m. net contents and above. | | | |
| b. Ships of less than 300 cub.m. net and contents; regardless of gross contents. | | | |
| Java-New York Line | a 22 | 268,497 | 429,193 |
| Asiatic Steam Navigation Co. | a 23 | 215,589 | 345,604 |
| West Australian J. S. | a 53 | 276,625 | 461,102 |
| Burns Philp Line | a 24 | 246,725 | 419,197 |
| British India Steamship Navigation Co. | a 7 | 73,612 | 119,766 |
| Weir, Andrew and Co. | a 41 | 396,214 | 651,802 |
| Dodwell Castle Line | a 28 | 281,292 | 460,559 |
| Anglo Saxon Petroleum Co. | a 177 | 1,722,612 | 2,892,309 |
| Asiatic Petroleum Co. | b 778 | 96,605 | 253,681 |
| United Molasses Co. | b 1,756 | 122,513 | 218,766 |
| Clan Line | a 25 | 376,324 | 635,882 |
| Blue Star Line | a 6 | 63,071 | 101,741 |
| P. and O. Steam Navigation Co. | a 2 | 35,447 | 59,150 |
| Ellerman Bucknall Steamship Co. | a 19 | 25,719 | 55,535 |
| Ho Hong Steamship Co. | a 4 | 41,464 | 66,009 |
| Hoe Aik Steamships | b 281 | 30,488 | 67,408 |
| Heap Eng Moh Steamship Co. | b 462 | 42,138 | 105,573 |
| Straits Steamship Co. | a 153 | 387,259 | 661,684 |
| Silver-Java-Pacific Line | b 153 | 296,028 | 647,125 |
| Silver Line | b 297 | 57,145 | 155,723 |
| Prince Line | a 53 | 469,088 | 817,245 |
| Western Australian State Shipping Service | a 26 | 257,988 | 469,568 |
| Others | a 24 | 252,697 | 454,453 |
| Norway | a 12 | 89,486 | 150,214 |
| Anglo Saxon Petroleum Co. (chart.) | a 334 | 2,371,648 | 3,950,490 |
| Yamashita (chart.) | b 1,383 | 129,830 | 297,995 |
| Klaveness Line | a 185 | 2,149,974 | 3,584,029 |
| Others | a 1 | 6,635 | 10,149 |
| Germany | a 23 | 197,480 | 328,374 |
| Hamburg-Amerika P. A. G. | a 63 | 462,662 | 780,455 |
| North German Lloyd | a 42 | 442,093 | 759,082 |
| Rickmers Reederei A.G. | a 50 | 734,092 | 1,208,914 |
| Greece | a 2 | 16,261 | 26,591 |
| Italy | a 55 | 467,801 | 762,231 |
| Lloyd Triestino | a 17 | 176,111 | 282,635 |
| Others | a 8 | 82,117 | 131,719 |
| Sweden | a 12 | 167,958 | 291,083 |
| Anglo Saxon Petroleum Co. (chart.) | a 2 | 23,812 | 39,461 |
| France | a 7 | 22,358 | 42,714 |
| Société Maritime Indochinoise | a 1 | 1,447 | 3,162 |
| Denmark | a 1 | 7,843 | 12,333 |
| East Asiatic Steamship Co. | a 5 | 16,149 | 28,744 |

Traffic with foreign countries

| Flag and Steamship Company | | Number | cub.m. net | cub.m. gross |
|--|---|--------|------------|--------------|
| U.S.S.R. | a | 1 | 8,371 | 13,886 |
| Finland | a | 1 | 3,575 | 6,336 |
| <i>U.S.A.</i> | | | | |
| Isthmian Steamship Lines | a | 25 | 255,677 | 435,651 |
| Others | a | 1 | 314 | 564 |
| Panama | b | 2 | 300 | 526 |
| Japan | a | 6 | 89,808 | 165,144 |
| Nanyo Yusen Kabush. Kaisha | a | 23 | 163,045 | 262,033 |
| Osaka Shosen Kabush. Kaisha | a | 47 | 448,047 | 716,556 |
| Nippon Yusen Kabush. Kaisha | a | 33 | 368,662 | 600,552 |
| Kawasaki Kisen Kabush. Kaisha | a | 1 | 12,086 | 16,628 |
| Kokusai Kisen Kabush. Kaisha | a | 13 | 156,199 | 215,106 |
| Ishihara Sangyo Kaiun G.K. | a | 36 | 361,453 | 584,820 |
| Yamashita Kisen Kabush. Kaisha | a | 15 | 158,793 | 235,123 |
| Tokyo Kisen Kabush. Kaisha | a | 2 | 20,425 | 31,023 |
| Others | a | 43 | 288,351 | 450,839 |
| China | b | 51 | 4,660 | 7,379 |
| Siam | a | 19 | 116,013 | 186,233 |
| Serawak | b | 61 | 4,821 | 10,280 |
| Malay States | a | 12 | 19,248 | 31,120 |
| Others | b | 15 | 13,097 | 25,641 |
| Malay States | b | 2 | 510 | 932 |
| Others | b | 3 | 87 | 129 |
| Total | | 10,264 | 30,357,174 | 51,237,265 |

India's Gold Mines

(Continued from page 468)

sunk on the West Lode, in values varying from 1 to 22.79 dwt. over an average width of 59-in. At 106-ft. down this winze, the 77th level was driven south 79-ft. and suspended on the footwall of Mysore North Fault. For the first 40-ft., the lode was 37-in. wide, value 4 dwt.; for the last 39-ft. it was 31-in. wide, value 13.2 dwt. The finding of payable ore at the intersection of this lode with the Mysore North Fault in this part of the Mine was very encouraging, because the development above this level near the Mysore North Fault had been unproductive.

Hit Quartz Lode

The 80th level drive South on the West Lode, which was started from North Main Winze cross-cut was driven 234-ft. The lode is of good width but low grade. On the footwall of this level, from 80 to 84-ft., quartz was exposed assaying 6.6 dwt. over a width of 69-in., and from 105-ft. to 108-ft. more quartz was exposed on the footwall assaying 2.5 dwt. This quartz is probably a portion of the folded quartz on the Main Lode. During the year, a cross-cut east from the end of this drive encountered quartz 9-in. wide, assaying 12.5 dwts. In regard to the south section, Glen Ore Shoot continued to maintain its strength and grade, and at the 80th level, the total length of payable ore developed was 1,122-ft., width 41.1-in., value 25.5 dwts. Four winzes are being sunk in this ore shoot below this level, and in the bottom of No. 1 winze south, which is the deepest point in this ore shoot and is 7,822-ft. vertically below surface, the lode is 57-in. wide, value 29.0 dwts. At the 78th level south, 158-ft. of the driving done assayed 17 dwts. over 33-in. This portion of payable lode is south of Glen Ore Shoot.

The deepest point in the mine is Heathcote Shaft sink, which is 31-ft. below the 82nd level, 7,851-ft. vertically below surface. The reserves of ore at December 31, 1936, were computed at 471,149 tons, of an average grade of 11.36 dwts., of gold per ton, being an increase of 22,908 tons and a decrease of .5 dwt. in grade compared with the estimate at the end of 1935. In addition there was probable ore of low grade amounting to 111,194 tons, as against 107,619 tons. During 1937, this mine produced 70,013 ozs. fine gold, and reported an estimated working profit of £217,700.

As observed on previous occasions, those people who have invested their capital in the Kolar Gold Field have good reason to be content with their fortunate lot, and an example of what they have received by way of return on their outlay is forthcoming from the fact that the total dividends paid to date by the Champion Reef Mine has now been brought up to the huge total of £5,328,687 while it should be noted that this gives the remarkable average of nearly 50 per cent per annum over a period of 43 years.

Making Fibre from Soya Beans

Showa Industry Company, Japan, Erects Factory and is Turning Out Product Reputed to be as Excellent as Wool

FOR producing an entirely new sort of fibre from Manchurian soya beans, the Showa Industry Company, Japan, has erected a factory at Ichinomiya, Kanagawa Prefecture, which at present is turning out one ton and a half of this fibre on an experimental basis.

In point of durability and coloration, this newly discovered fibre is as excellent as wool. Hence, the company is now pushing forward a plan to increase the daily output of the fibre to the 30-ton level, for which the necessary factory equipment may be installed before the end of this year.

The fibre can be immediately spun into thread from which clothing material and blankets are manufactured. For the time being, articles made with the fibre may be offered to meet the requirements of the Army and Navy, it is reported.

Experiments with the production of fibre from soya beans have long been conducted at the Research Laboratory of the Kyoto Imperial University. Soya beans contain approximately 37 per cent of protein which can be altered into fibre by means of a certain chemical process.

But the fibre thus far produced by the said research laboratory is quite unsatisfactory in durability. This fact has prevented the industrialization of its production. Some time ago, however, Mr. Hidetsugu Mochizuki, a young chemist living in the city of Urawa, Saitama Prefecture, after much research work succeeded in discovering a new process for giving a high amount of durability and warmth to this fibre. A patent was granted for his process.

The Showa Industry Company negotiated with Mr. Mochizuki for the use of his patented process for the production of the fibre. The company intends to spend the sum of four million yen during the first stage of production.

In an effort to increase the output of various crops by employing better mechanical farming methods, the authorities of the Manchoukuo Government decided to carry out a three-year plan, beginning with 1939, the draft of which is understood to have already been worked out jointly by the Department of Industry and the Manchuria Colonization Corporation.

Farms are to be cultivated in accordance with this plan mostly in those districts of North Manchuria where immigrant colonies may be opened in the future. A party of officials and experts may be sent shortly to these districts for thoroughgoing investigations. On the basis of a fact-finding report from this party, the necessary arrangements for the plan will progress in a definite way.

Second Crop Forecast

The second crop forecast of the staple Manchurian farm products for 1938, compiled as on September 1 on the basis of investigations conducted by the Agricultural Affairs Bureau of the Department of Industry in Hsinking, was officially released at noon on September 10.

The total crop yield of the whole country, excluding Jehol Province and the four provinces of Hsingan, is put at approximately 16,510,000 metric tons, which, as compared with 1937, indicates a gain of 1,530,000 metric tons or 11 per cent.

The total output of soya beans, the most important of all Manchurian staple crops, as given in the second forecast, is about 4,100,000 metric tons, showing an increase of roughly 380,000 metric tons or one per cent over the previous year. The kaoliang output is estimated at 4,040,000 metric tons, a gain of 480,000 metric tons or 14 per cent.

The total estimated quantities of millet and maize are 3,030,000 and 2,350,000 metric tons respectively. In comparison with 1937, an increase of about 250,000 metric tons or 19 per cent is seen for millet and an increase of 380,000 metric tons or 19 per cent for maize. The output of paddy-rice is put at 610,000 metric tons, indicating a gain of about 70,000 metric tons or 13 per cent.

On the other hand, a decrease in the wheat yield is predicted. The estimated output of this crop for 1938 is 820,000 metric tons

which, as compared with the previous year, shows a decline of about 80,000 metric tons or nine per cent. Details of the first and second forecasts are given below: (in metric tons)

| | Second forecast | First forecast | Increase | Decrease |
|---------------|-----------------|----------------|----------|-----------|
| Soya beans | 4,096,889 | 4,380,550 | — | 283,661 |
| Other beans | 315,090 | 354,280 | — | 39,190 |
| Kaoliang | 4,038,305 | 4,565,696 | — | 527,391 |
| Millet | 3,030,974 | 3,499,375 | — | 468,401 |
| Maize | 2,345,249 | 2,402,478 | — | 57,229 |
| Wheat | 819,672 | 953,136 | — | 133,464 |
| Paddy-rice | 609,412 | 662,413 | — | 53,001 |
| Upland rice | 114,625 | 124,972 | — | 10,347 |
| Other cereals | 1,001,050 | 1,088,896 | — | 87,846 |
| Hempseed | 31,942 | 36,877 | — | 4,935 |
| Perilla seed | 109,649 | 108,178 | — | 1,471 |
| Total | 16,512,857 | 18,176,851 | — | 1,663,994 |

The area under cultivation, as given in the first and second forecasts, is: (in hectares)

| | Second forecast | First forecast | Increase | Decrease |
|---------------|-----------------|----------------|----------|-----------|
| Soya beans | 3,589,271 | 3,782,619 | — | 193,348 |
| Other beans | 367,646 | 407,870 | — | 40,224 |
| Kaoliang | 3,093,178 | 3,372,143 | — | 278,964 |
| Millet | 2,697,443 | 3,144,408 | — | 466,965 |
| Maize | 1,655,356 | 1,611,039 | 44,317 | — |
| Wheat | 1,084,700 | 1,142,623 | — | 57,923 |
| Paddy-rice | 253,490 | 255,409 | — | 1,919 |
| Upland rice | 93,637 | 96,402 | — | 2,765 |
| Other cereals | 1,022,265 | 1,111,664 | — | 89,399 |
| Hempseed | 39,395 | 50,828 | — | 11,433 |
| Perilla seed | 149,812 | 160,726 | — | 10,914 |
| Total | 14,046,193 | 15,135,732 | — | 1,089,539 |

In the following table are given increases or decreases in the output of the various crops given in the second forecast as compared with 1937: (in metric tons)

| | 1938 (Second forecast) | Increase over 1937 | Decrease over 1937 | Percentage (1937 outputs as 100 per cent) |
|---------------|---------------------------|-----------------------|-----------------------|--|
| Soya beans | 4,096,889 | 382,586 | — | 110 |
| Other beans | 315,090 | 22,789 | — | 108 |
| Kaoliang | 4,038,305 | 483,509 | — | 114 |
| Millet | 3,030,974 | 249,510 | — | 109 |
| Millet | 2,354,249 | 376,186 | — | 119 |
| Wheat | 819,672 | — | 77,695 | 91 |
| Paddy-rice | 609,412 | 69,804 | — | 113 |
| Upland rice | 114,625 | 5,975 | — | 105 |
| Other cereals | 1,001,050 | 75,702 | — | 108 |
| Hempseed | 31,942 | — | 3,202 | 91 |
| Perilla seed | 109,649 | — | 3,318 | 97 |
| Total | 16,512,857 | 1,581,843 | — | 111 |

Official figures of various staple Manchurian farm products exported from Dairen during the month of September, 1938, are given below:

| | Soya beans | Bean cake | Bean oil | Buck-wheat | Perilla | Pea-nuts | Ground-nuts |
|------------|------------|-----------|----------|------------|---------|----------|-------------|
| Japan | 26,483 | 15,548 | 16 | 13 | 1,281 | 887 | 1,343 |
| Europe | 123,238 | 1,852 | — | 805 | — | 2,912 | 650 |
| U.S.A. | — | 183 | 35 | — | — | 569 | — |
| South Seas | 4 | 17 | — | — | — | — | — |
| China | 8,752 | 471 | 1,735 | 7 | — | 382 | 152 |
| Total | 158,477 | 18,071 | 1,787 | 826 | 1,281 | 4,750 | 2,145 |

Total in September, 1937: 1,479,419 691,371 59,398 20,159 52,047 42,976 68,497

Agreements Explained

On September 23, a meeting was opened in Hsinking under the joint auspices of the Central Manchurian Staple Produce Association and the Hsinking Chamber of Commerce and Industry, at
(Continued on page 477)

The Yellow River and Chinese Civilization

By HOTUMI OZAKI

ON the night of the tenth of June the Huang-ho or Yellow River burst at Chinsui chen, north of Chengchow, Sanlyu chen, north of Chungmu, and at one other place. From these outlets the turbid water gushed out in torrents three or four hundred yards wide. And in an unbelievably short time the flood had swept over the several thousand villages and hamlets of the Honan Plains, including the four local administrative centers of Chungmu, Yushih, Tungsu and Fukow. By the seventeenth of the same month it was calculated that the new Yellow River extended over a distance of 400 Chinese *li* (138 miles), that the total area affected by the flood amounted to 150 square *li* (52 square miles), the villages totally submerged numbering 2,000, those partially flooded 1,500, with the sufferers totalling 700,000. The wheat crop had been ready to be harvested, and the Kaoliang (sorghum) had grown about three feet high. But both these crops were completely washed away. The agricultural damage and property loss amounted to a little short of a hundred million dollars.

Can the Yellow River be brought under better control? Or can a new Yellow River be successfully made in order to change its course? It all depends on the subsequent conditions, the chief of which being the amount of rainfall to follow. The Japanese experts seem to favor the idea of improvement, while the Chinese are likely to decide on the alternative idea of changing the course in view of the fact that the riverbed of the Yellow River has for some years been above ground level. The flood turned south at Fukow towards Chowkiakow, from which point it seems to have turned eastward.

Although the consensus of opinion favored at first the changing of the course, present indications point to the scheme for improvement. At the time of the great flood of 1935 the Yellow River burst at Tangkow chen in Shantung Province and near the Honan border, threatening to change its course. But the people succeeded with great difficulty in blocking the gap. Historically speaking, during a period of 4,133 years from the "Eightieth Year of the Emperor Yao's Reign" to the fifth year of Hsienfeng in the reign of the Emperor Wen of the Ch'ing Dynasty, the Yellow River made a major change of its course no less than six times. The frequency of minor shifts has been beyond calculation.

It was eighty-three years ago that the Yellow River took its sixth (the present) course through Hopei Province to the Pohai. In the fifth year of Hsienfeng during the reign of the Emperor Wen-Tsung of the Ch'ing Dynasty (1855), the river burst at Tungwahsiang, and absorbing the Great Ch'ing-ho into its stream, it began to flow into the sea from Lichin.

When thus reviewed, it is not difficult to understand what great sufferings were brought upon ancient China, primarily an agricultural state, by the wild and unrestricted activities of the Yellow River that flows through the extensive agricultural areas of North China.

Scholars agree that one of the peculiarities of Eastern society, which is based on Asiatic productive methods, is the particularly

important position occupied by large-scale public works among the activities of the nation.

The improvement of the Yellow River, extending over a distance of 2,500 miles, and the carrying out of irrigation projects require large-scale and exhaustive precautions and preparations. It is natural, therefore, that the founding of a despotic, centralized nation should be a prerequisite, even more urgently necessary than the improvement of the Yellow River. The culture of ancient China may rightly be regarded as a product of the struggle between the Huang-ho and the agricultural Han people.

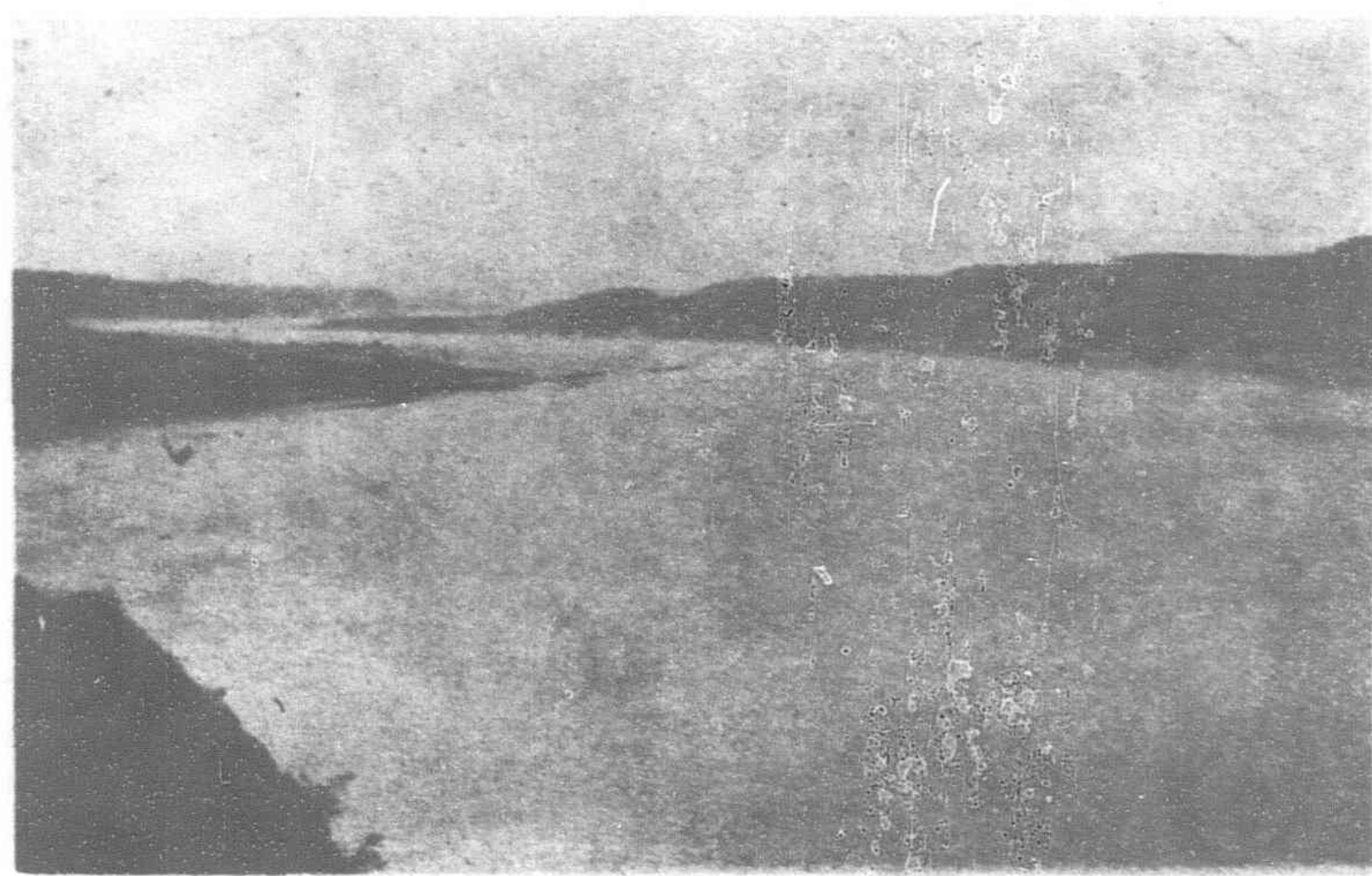
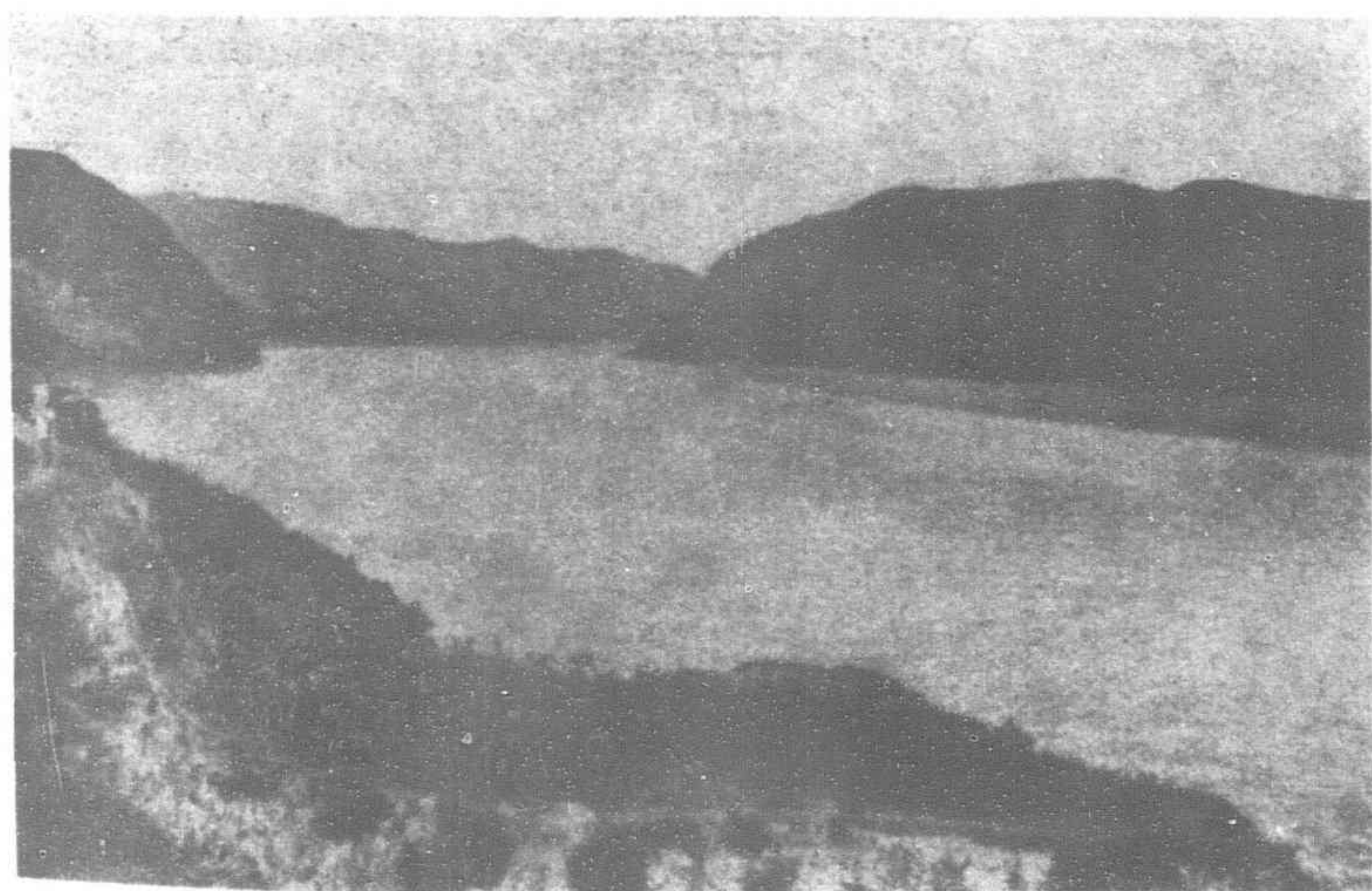
The truth of this statement will be confirmed by a glance at a historical map of China. See how dynasties rose and fell as the great River took on changing aspects from the remotest times of the Yu Dynasty down through the Chunchiu period, from the Civil War period to the Ch'in Dynasty.

And in this drama of war and peace, victories and defeats, there have been two imposing backgrounds: the good earth and the masses of peasants tirelessly at work; the great river indifferently dealing out blessings and curses. The natural outcome of these conditions was a despotic political structure such as is characteristic of the East.

In ancient times one who succeeded in improving the Yellow River was entitled to the throne of China. Yu's father was sentenced to death for having failed in river improvement. Yu himself spent eight long years in the improvement work of nine rivers, and according to tradition, because of his preoccupation with this work, he passed by his own home three times only during that time, entering it not once. The Emperor Yu's story illustrates what great pains ancient Chinese rulers took in the work of river improvement.

It is already a commonplace that the repeated occurrence of natural disasters on Chinese soil in recent years is largely due to the looseness and decadence of national administration. The weakening of a centralized government leads to the ascendancy of feudalistic local powers, which in turn renders hopeless the accomplishment of large-scale, national plans for the prevention of damage. As a result, public works such as the repair of dikes, the dredging of rivers and lakes, are neglected; no thought is given to a far-sighted measure like reforestation, which, by the way, is almost unheard of in China. The forest zone occupies only 8.4 per cent of the entire Chinese territories, a far too small percentage according to the theory that prescribes 30 per cent as the minimum requisite for a country to safeguard itself against the damages of droughts and floods.

The Yellow River alone has been the cause of great sufferings to the inhabitants of its basin for five consecutive years from 1931; and in July, 1935, it broke its banks at Tangkow-chen, near Tsaochow, Shantung Province, and wrought great havoc. According to reports, the areas submerged in the turbid water included twelve counties in western Shantung, over ten counties in northern Honan and six counties in northern Kangssu. The inundated districts in



Two views of the Yellow River basin looking upstream; picture on left taken at Mengtsin Hsien, that on right at San Men

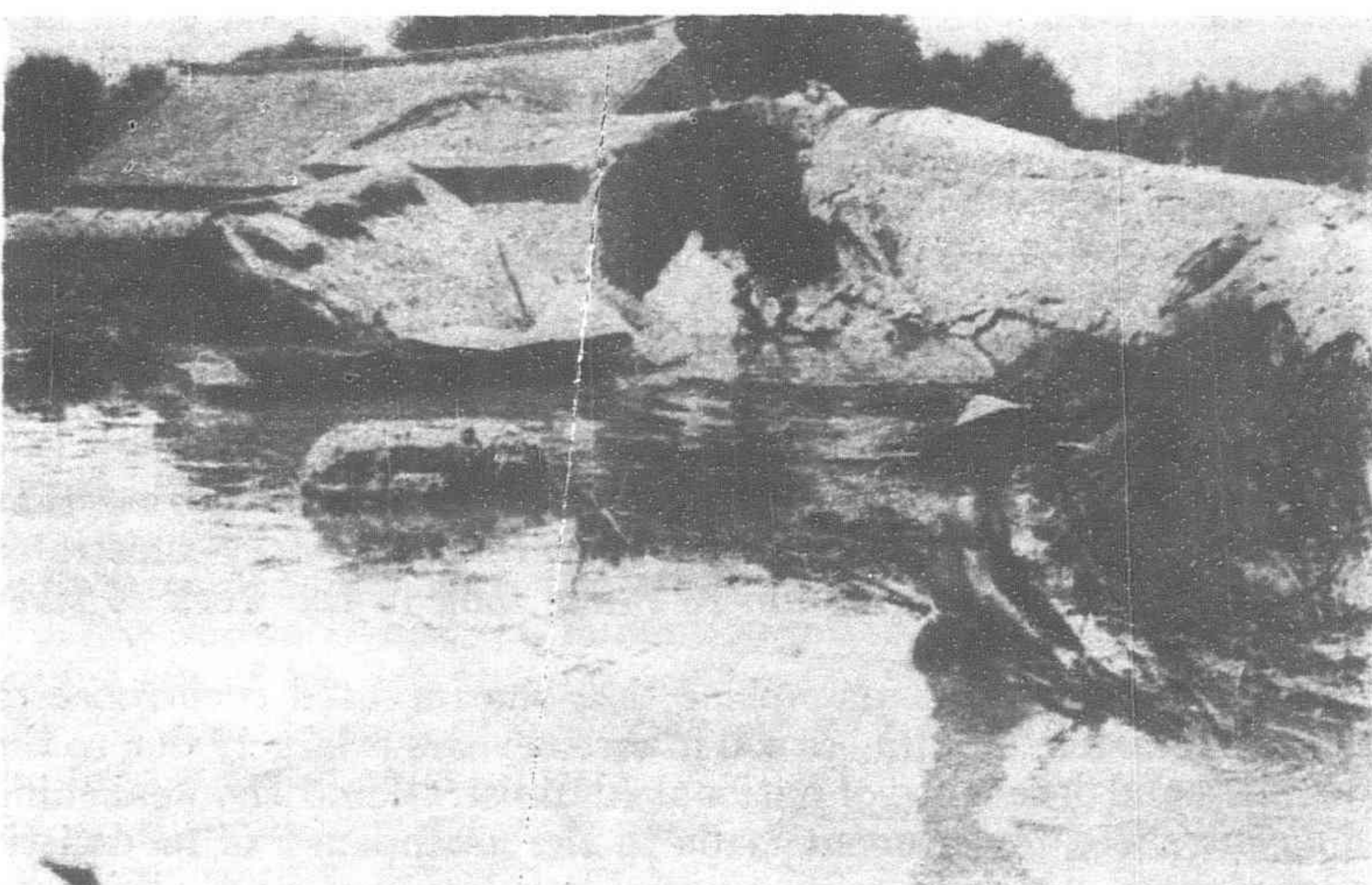
Scenes in Northern Kiangsu in the Great Flood of 1936



The village of Cha Lo inundated under flood waters



Here in the Kao Yao Hu district many were drowned



A farmer in Chao Lo, Northern Kiangsu searching the wreckage of his house



Picture taken at Li Tai Eul, which formerly was a grain and cattle market

these three provinces covered an area of 14,000 square *li*; the afflicted people totalled 9,600,000; damage was estimated at 300,000,000 dollars.

After the formation of the Kuomintang Government, its first duty was to work out practical ways of solving the many and complicated difficulties of China's agricultural problem. But the task threatened to be too overwhelming, and the Kuomintang Government was incapable of offering any adequate solution. Instead, it launched upon a reconstruction program less difficult but more apt to win popular approval and confidence. River improvement, nevertheless, offers in essence the very solution to the most difficult agricultural problem.

It must not be supposed that the Kuomintang Government has given no thought to the question of river improvement. For the first task undertaken by the National Economic Council was the continuation and enlargement of the activities previously conducted by the C.I.F.R.C. (China International Famine Relief Commission) after the great flood of 1931. And one item in its prospectus was the improvement and reinforcement of the Yellow River dikes. There had been founded at Chengchow an Irrigation Enterprise Office and part of the irrigation work had been entrusted to the Flood Relief

Committee of the Kuomintang Government. Since 1935, however, all irrigation undertakings came under the single control of the National Economic Council, and the Yellow River Irrigation Committee was formed as one of its departments. Under this committee was organized a Riparian Affairs Bureau for Hopei, Shantung and Honan, respectively, whose projected activities were:

(1) Improvement and dike-building for the rivers I, Lo, Sha and Ying.

(2) Repair-work for large dikes from spring, 1935: dikes in Hopei, Shantung, Honan Provinces, viz, Chin Dike, Kwanmen Dike and the smaller Lanfeng Dike; embankment protection work on the river-mouth of Piho.

(3) Work of blocking breaks: at Panglou, Hopei; at Kwanho, Honan; at Tungchuan, Shantung.

(4) Repair work on dikes following the great flood of 1935.

(5) Improvement of the mouth of the Yellow River.

(6) Work of connecting the Yellow River and the canals. The first stage in the project was completed in October, 1935.

(7) Reforestation.

The Huang-ho is the second largest river in China, and one of the seven great rivers of the world. Its length is 2,897 miles; its basin covers an area of 204,237 square miles (281,301

(Continued on page 477)



Another picture of Li Tai Eul inundated

A New Diesel Engine*

By J. G. EARLE, Sales Manager, De La Vergne Engine Co.

HERE never was, and there probably never will be, a time when a Diesel engine designer could safely rest on his laurels. Continual development is always necessary, and the necessity is due to different causes. We speak of obsolete engines, and yet it is an interesting fact that old engines are seldom retired from service solely on account of obsolescence. The reason is that the efficiency of these engines need not deteriorate with age if they are maintained in reasonably good condition. Furthermore, the old engines are of remarkably high efficiency even as judged by modern standards. Whereas, for instance, an efficient condensing steam turbine power plant in 1918 would produce a horse-power hour with an expenditure of about 18,000 Btu (British thermal units), which corresponds to an overall thermal efficiency of 14 per cent, in 1938 a steam plant of the same capacity would require possibly as little as 10,000 Btu per hour, representing a thermal efficiency of 25 per cent, a very significant improvement, and one which makes the 20-year-old steam plant quite obsolete.

But in 1918 De La Vergne was building Diesel engines which had fuel consumption rates only slightly inferior to those of modern engines. They may have required as much as 8,500 Btu for an output of one horse-power for one hour. The efficiency would, therefore, be 30 per cent—as compared to the 14 per cent efficiency of the 1918 steam plant. Moreover, in order to get an efficiency as high as 14 per cent, the steam plant needed to be of substantial size, say 1,000 kw. or larger, whereas the Diesel engine efficiencies were maintained substantially constant throughout the range from small engines to large ones. Diesel engines of 1938 may be expected to turn out a horse-power hour for the expenditure of possibly as little as 7,000 Btu per hour, which means that the 1918 efficiency of 30 per cent has been improved to 36 per cent. The improvement in efficiency is, therefore, not so spectacular as it has been in the case of the steam plant, and this is due primarily to the fact that there was decidedly more room for improvement in steam.

Old Engines Cumbersome

What, then, have been the lines along which Diesel engine development has led to improved engines? Well, in 1918 the term "Diesel engine" generally implied a ponderous piece of machinery, which ran at an exceedingly dignified speed. For example, an engine of 150 horse-power would have a single horizontal cylinder of 21 inches bore, and would be equipped with a fly-wheel having a diameter of 11 feet and a weight of 12 tons. This impressive mass of cast iron, made in two sections and held together with mighty rim-links and hub-bolts, was rotated by the engine, with seeming great deliberation, at 164 rpm. Even so, a point on the periphery of the wheel must travel in its orbit at a speed of 65 mph. The weight of the fly-wheel alone for this 20-year-old engine would equal the total weight of five complete modern high-speed engines of 150 horse-power each.

Obviously, therefore, we are developing more power from a given weight of iron and steel; we can get the same amount of power capacity in a vastly smaller space, and we can apply modern Diesel engines where weight and space restrictions would have precluded the slightest consideration being given to Diesels of the vintage of 1918. But forget not that there are many of the 1918 Diesels still

in efficient operation, and with which their owners would not part for any reasonable consideration.

Consider for a moment what have been the problems which the Diesel engine designer has had to solve in creating this entirely new kind of machine which, nevertheless, uses the same basic principle for its operation that the massive Diesel engines of twenty—even forty—years ago used; the principle of ignition of fuel by heat of compression of air, which was first demonstrated by Dr. Rudolph Diesel. Basically, the problem is to build an engine which, for its size and weight, can inhale a maximum amount of

air for the support of combustion of the fuel, for obviously, the greater the amount of air available, the greater the quantity of fuel that can be burned, and, other things being equal, the greater the amount of power that can be developed. So we build an engine of many small cylinders, arranged for good balance, and run it fast in order that it may, considered as an air pump, deal with a relatively large volume of air in a given time interval. But we must also take care to see that the valves and air passages are carefully designed so that this machine can get its "lungs" well filled with air, and not just partly filled, each time it draws a breath.

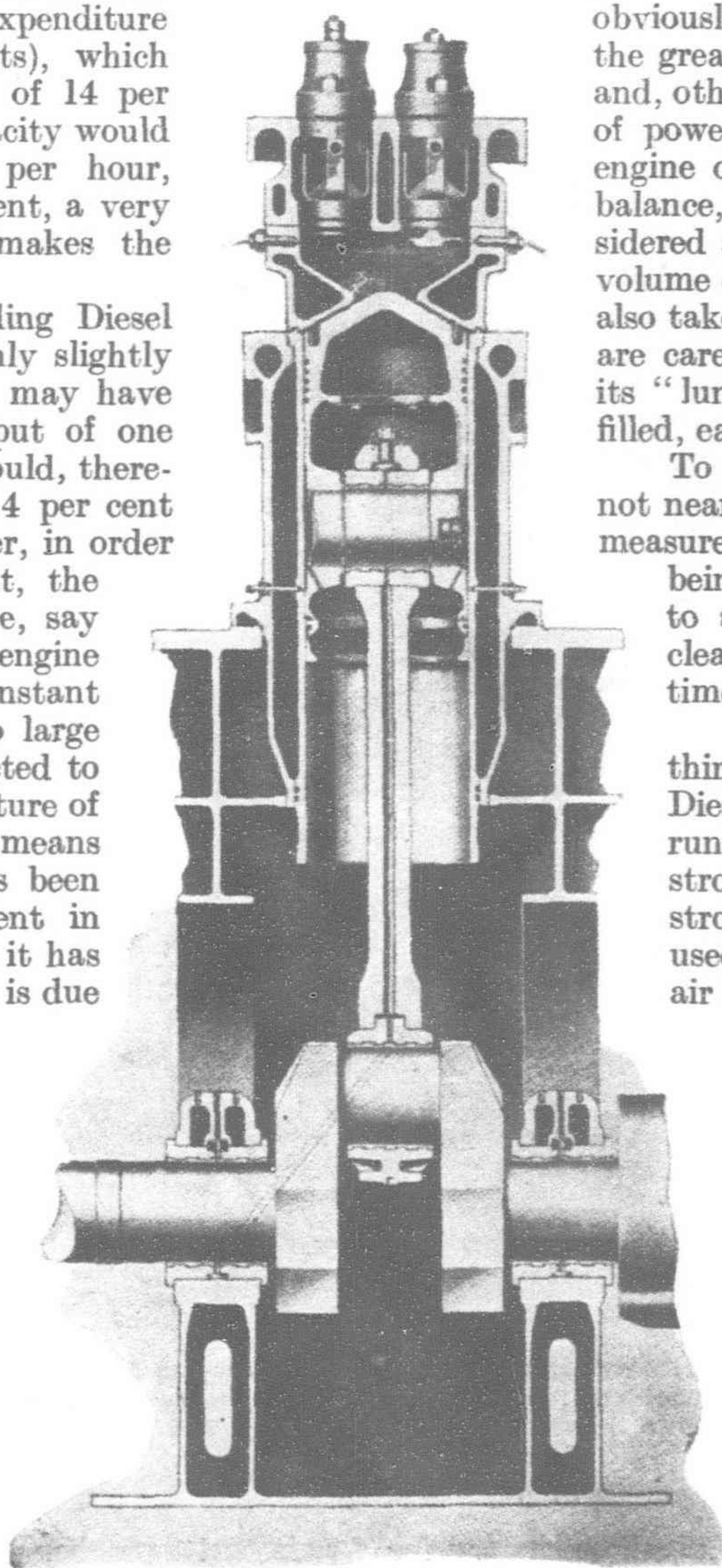
To do all this is not a simple problem, but it is not nearly so difficult as the problem of injecting a measured quantity of fuel into the air just as it is being highly compressed (and therefore heated to a high temperature), and getting it to burn cleanly and completely in an extremely small time interval.

What does it mean to accomplish all of these things in a typical high speed four stroke cycle Diesel engine? Suppose, for example, that it runs at 1,200 rpm. Each piston makes 1,200 up strokes and 1,200 down strokes per minute, 2,400 strokes all told. Of these, 600 down strokes are used for inhaling air; during 600 up strokes the air is compressed; all the power that the engine develops must be produced on the 600 ensuing down strokes, and the remaining 600 up strokes are used to expel the products of combustion, the exhaust gases.

Fuel injection must begin about 15 degrees of crank angle ahead of top dead center and must be completed in, say, 30 degrees of crank angle. If the engine turns at 1,200 rpm., the time interval allotted for one revolution (360 degrees) is 1/20th of a second, and that available for fuel injection is only one-ninth of the time for one revolution: 1/9th of 1/20th, or 1/180th of a second. Bear in mind that the quantity of fuel which must be injected must also be under accurate control. If you would travel at the rate of one foot in this time interval, you must speed up to 120 miles per hour.

Operations Must Be Rapid

It is within an extremely short time such as this that ignition of the fuel must be initiated and combustion carried to completion so as to give the hot products of combustion the greatest possible opportunity to impart to the moving pistons the heat energy which they contain before the opening of the exhaust valve. Thus, literally in a flash, the chemical energy of the fuel is transformed into heat energy of hot gases which, in turn, is immediately



Section through De La Vergne Type SI Model VA Diesel engine showing arrangement of combustion chamber and spray nozzles

*From Baldwin Locomotives.

transformed into mechanical energy which is available at the engine crankshaft.

The most difficult thing to accomplish in all of these rapid operations is to secure immediate and thorough mixture of the fuel and air so as to assure complete combustion of the fuel and to make available as much as possible of the air actually present for the support of combustion. By this means only can the maximum amount of fuel be utilized and the maximum amount of power be obtained from an engine of given size. There are, basically, two ways of doing this, first by the injection of the fuel under very high pressure and through a multiplicity of extremely small orifices in order to break it up into a mist of exceedingly fine droplets. These sprays of oil mist are projected into the air contained in the combustion chamber which is usually formed by the cylindrical space between the top of the piston and the lower surface of the cylinder head. The air contained in this conventional form of cylinder head is in a relatively quiescent state, and mixture of the fuel and air is dependent chiefly upon the number and degree of penetration of the fuel sprays.

The alternate method of obtaining the requisite degree of mixture is to inject a fine spray of oil into a combustion chamber connected through a suitable throat with the cylinder to obtain turbulence.

Principle Used Twenty Years Ago

This was the principle adopted by De La Vergne over twenty years ago in the first commercially successful solid injection Diesel engines built in the U.S.A. It was the principle used even in the ponderous single cylinder 150 horse-power engines of 1918. A glance at the cross-section drawing of one of the heavy duty, slow speed, Model VA vertical engines which employ this principle will reveal how it works. There is a "throat" or large orifice between the cylinder and combustion chamber. On the compression stroke the piston forces air through this throat and causes it to enter the combustion chamber. Thus, the air comes into contact with the two opposed fuel sprays, one from each of the spray nozzles located on opposite sides of the combustion chamber. There being only two spray nozzle holes, they are relatively large and can deal with heavy grades of fuel oil and permit the use of low injection pressures. This form of combustion chamber is not adaptable to engines of high speeds. In addition to many other fundamental difficulties, it does not permit sufficient freedom of air flow around part of the intake valve to enable it to deal with the large volume of air necessary for high speeds and increased ratings.

Difficulties Overcome

However, the foregoing difficulties as well as others in connection with high speed Diesel combustion, have been most effectively overcome in the latest De La Vergne development. Referring to the sectional view of the De La Vergne Model VM engine, it will be noticed that the spray valve is arranged to direct a multiplicity of oil sprays symmetrically into the outermost highly turbulent areas of a substantially spherical combustion chamber which is separated from the space above the piston by a throat, and that the air, on the compression stroke is forced through this throat tangentially to the spherical chamber. This gives the air a rapid rotary motion and brings the air into contact with all of the fuel spray. Thus, excessively high injection pressures are avoided

in this engine, as in the older ones; combustion takes place quickly and with uniform rates of pressure rise to moderate maximum combustion pressures, resulting in exceedingly smooth engine performance. The main valves are two in number; no space need be provided in the center of the cylinder head for a spray valve, as in the conventional type of engine. The valves are, therefore, unusually large and the air flow has a minimum of restrictions.

The spray nozzle in this type of engine has seven orifices instead of the single orifice nozzles in the older engines, but owing to the short length of the combustion chamber together with the spray arrangement therein and the turbulence, no great amount of penetration of the sprays is necessary; hence the holes may still be relatively large and the injection pressure low. Despite the warning of a number of experts to the contrary, the principles involved have proven their merit in large size engines. A patent has been obtained on this system.

This combustion chamber design was first applied to a six cylinder, 7-in. by 8-in. engine which was capable of developing a maximum of 210 horse-power at 1,200 rpm. For ordinary stationary operation, it was rated 150 horse-power at 900 rpm. It was next applied to a 9-in. by 12-in. engine. While some of the experts had their own good reasons for thinking that the principles of this De La Vergne improvement would be disastrous especially in large engines, nevertheless a still larger 12½-in. by 15½-in. was built in six and eight cylinder sizes, for either stationary or locomotive application. The largest of these engines has a capacity of 900 horse-power at 600 rpm. The highly satisfactory results obtained with this engine led to the decision to build a still larger size.

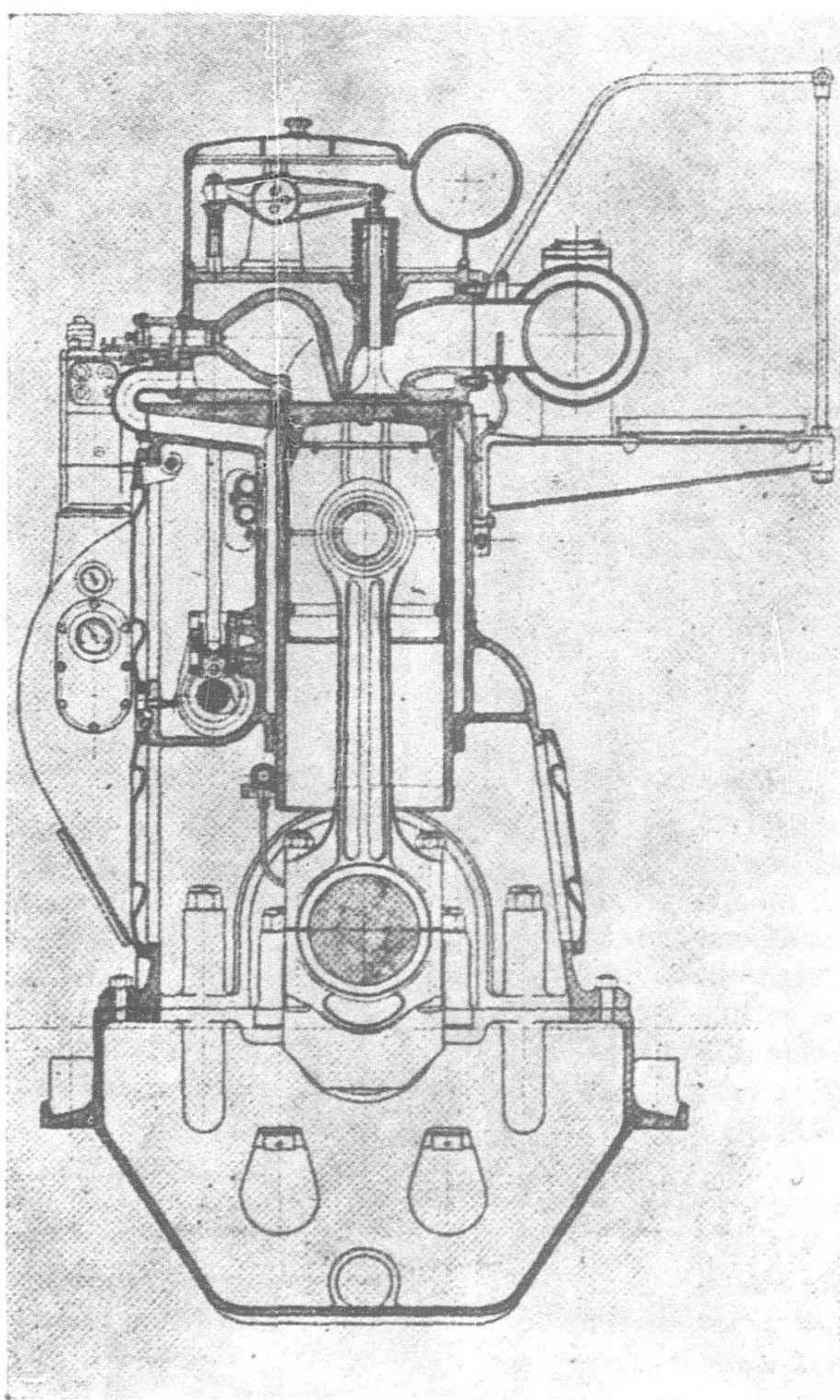
Model VM Latest Development

The latest of this "family" of engines is a 16-in. by 20-in. engine which is available in sizes up to the eight cylinder unit having a normal rating of 1,000 bhp. at 327 rpm. with a maximum rating for certain special applications of 1,150 bhp. at 400 rpm. This engine is designated as the De La Vergne Model VM.

Thus we have applied to an engine of moderate speed and considerable size the experience gained from strictly high speed engines. Yet, by all standards of comparison the VM engine is conservatively rated for normal stationary heavy duty applications. At 327 rpm. the piston speed is 1,090 feet per minute; by no means excessive, particularly with the attention that has been given to the reduction of reciprocating masses by the use of I-section drop-forged connecting

rods, wrist pin bearings of the bronze bushing type and full floating wrist pins, in which the heavy locking devices are eliminated. The mean effective pressure referred to rated brake horse-power is 75.3 pounds per square inch, which is moderate not only by all modern standards, but by the ability of the engine to develop a B.M.E.P. in excess of 90 pounds per square inch at a speed of 327 rpm. with clear exhaust.

Many of the features of these new Diesel engines have been thoroughly tried and proven on small automotive engines of both the gasoline and Diesel types. The matter of bearings for instance—we now use steel shells containing a thin lining of babbitt which is deposited centrifugally by special process. The shells are very accurately machined and are interchangeable without the necessity for hand-fitting and scraping. The close tolerances characteristic of automotive work have been applied to these engines, which has permitted the elimination of the expensive marine type connecting rod with shims for adjustment of the clearance between



Cross section through De La Vergne Model VM Diesel engine, cylinder 16-in. bore by 20-in. stroke, having normal rating of 750 bhp. in six cylinders at 327 rpm.

the top of the piston and the underside of the cylinder head. Crankshaft diameters have been greatly increased and the length of the journals and crankpins has been decreased. As a consequence, cylinder center distances in the Model VM engine are now only 1.56 times the cylinder bore, whereas in vertical engines of older design this ratio was in the neighborhood of two. This shortening of cylinder center distances has done a great deal toward the reduction of weight in the new engines, it being of interest to note that the weight of the Model VM engine in pounds per cubic inch of piston displacement is approximately 2.96, whereas the weight of the Model VA engine approximates 3.6 pounds per cubic inch of piston displacement. This lighter weight is not due to the use of thin cast iron sections, but to the exercise of care in the selection of design proportions.

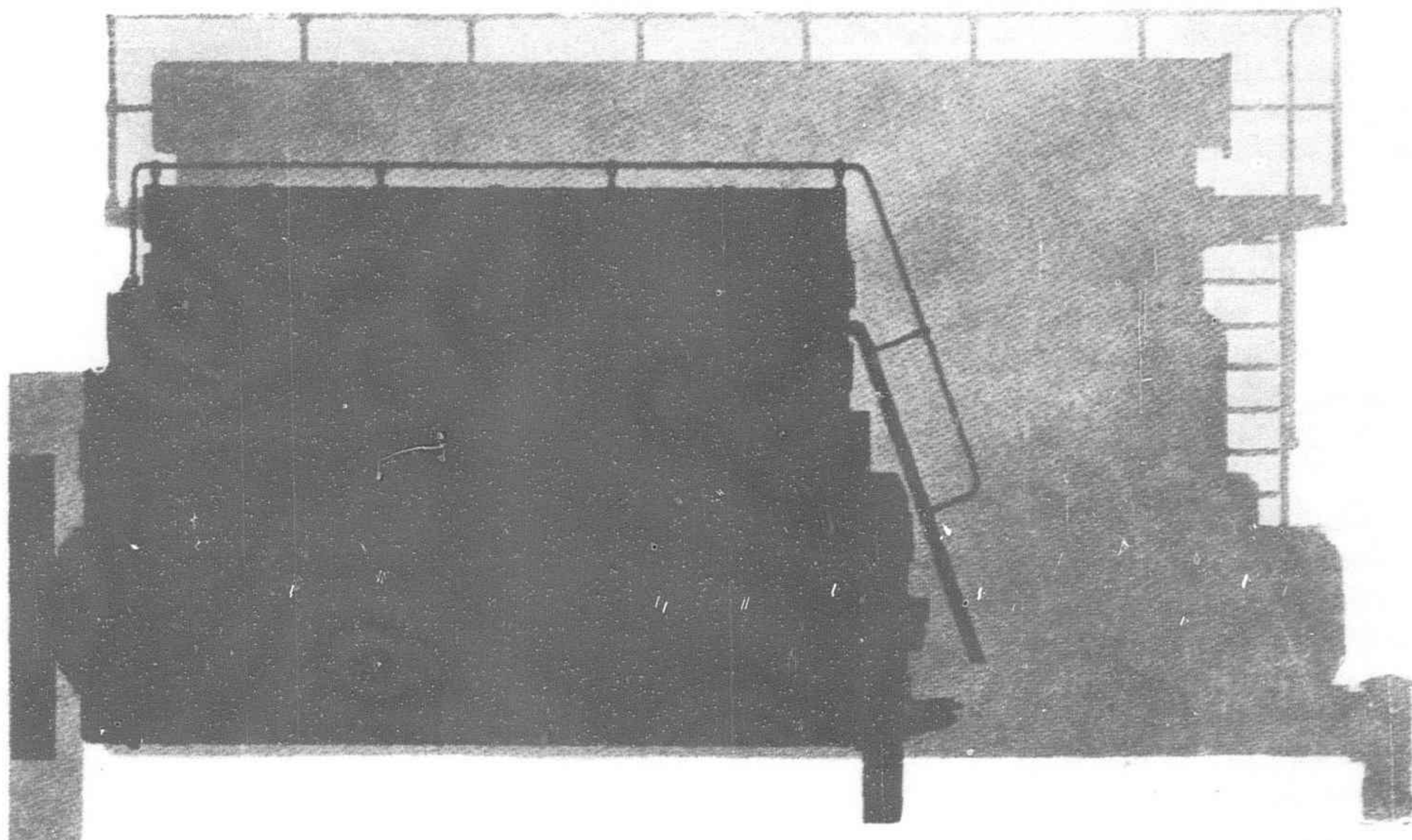
Metallurgical Advances

Fifteen years ago cast iron was just cast iron, and if that was not suitable for a highly stressed part, cast steel had to be used. But the rapid strides made in metallurgy during recent years has resulted in there being available to the engine designer a wide variety of cast iron and steel specifications, involving alloys and heat treatment to obtain the many different physical characteristics required in modern engine design, where consideration must be given to high tensile strength, endurance limits on fatigue and resistance to heat and corrosion. The availability of such materials, as much as any other one factor has made the modern Diesel engine possible. It could not have been built with the materials we had to work with even ten years ago.

Throughout the engine advantage has been taken of the extensive use of parts made by specialty manufacturers with a resultant saving in cost without any sacrifice in quality. Bosch pumps and spray valves, for instance, are used. The camshaft drive is of the Diamond roller chain type. The intake and exhaust valves are of special alloy steel made by a manufacturer who specializes in production of valves for internal combustion engines. The governor is of the Pickering hydraulic relay type.

The camshaft consists of a number of individual sections connected by couplings. There is one section for each cylinder and the sections are identical in design and consist of a solid steel forging with integrally forged cams for the fuel pump, air starting valve and intake and exhaust valve.

On the control side of the engine, there is a compartment opposite each cylinder at the bottom of which is the camshaft equipped with needle bearings running in oil, the roller type cam



Comparison of space requirement of six cylinder VA engine and six cylinder VM engine, both having capacity of 750 bhp.

followers and the lower ends of the push rods for the main valves, together with the fuel pump and air starting valve. This assembly is readily accessible by the removal of a large cover plate. The valve gears on top of the cylinder heads are likewise completely enclosed in a cast iron housing integral with which are units of the air intake header. The adjacent units of this header are sealed against air leakage by an external rubber ring and the entire housing may be readily removed. For access to the valve gear and for inspection purposes there is an aluminum lid on top of the housing which is readily removable without the use of tools. An important feature of this engine is the external water connection between the frame and the cylinder head. This is in the form of a return-bend with flanged connections to the frame and cylinder head. A whole connection may be removed for repacking of joints without disturbing the cylinder head itself. Likewise, of course, any leakage that may develop is external and readily detected.

In this latest De La Vergne development, there is incorporated the experience gained by many years of building heavy duty stationary engines combined with the engineering advances which have been made during the development of high speed engines. There has resulted an engine conservatively rated, moderate in weight and requiring the minimum of space for its installation and which can, therefore, be applied to a wide variety of applications some of which have not hitherto been suitable for the application of the older De La Vergne types of engines because of their greater weight or space requirements.

The Yellow River and Chinese Civilization

(Continued from page 474)

square miles in the estimate of the Yellow River Irrigation Committee). Its source is in the northern foot of the Bainkara Mountains, Chinghai Province, and it flows through Kansu, Ninghsia, Suiyuan, Shansi, Kiangsi, Honan, Hopei and Shantung, and finally into the sea. The vastness of its dimensions reminds one of the ramifications of the course of China's five-thousand-year old history.

The total area of loess alluvial land is 485,538 square miles. Hence the name of Hioangtu (Yellow Soil) Civilization for the cultural products of the Yellow River.

It is an interesting problem to examine why this Yellow Soil Civilization which was once prosperous beyond words has been reduced to its present unimportance, and why the center of culture moved to the basin of the Yangtze. In brief, it all comes to this: that the earlier Chinese failed in their struggle against the Yellow River, the source of their northern civilization. They had grown so accustomed to the advantages of the great river that they failed to make serious efforts to control its natural menace. It was while they were thus suffering from the ravages of the Yellow River that the Northern people increased their conquests.

Far-Eastern history has reached a great cross-roads at the present moment. Whatever its immediate future and whoever is

responsible for building a new North China, the Yellow River will continue its complacent flow, endlessly and magnificently, presenting a problem that has never been solved from time immemorial.

Making Fibre from Soya Beans

(Continued from page 472)

which speeches explaining the new Reich-Manchoukuo commercial agreement and the three-Power commercial agreement among Japan, Manchoukuo and Italy were given by Councillor Tsuneo Uchida of the General Affairs Board, Mr. Tatsuichi Kono, chief of the 1st Section of the Foreign Office, and Mr. Takeo Oki, chief of the Foreign Trade Section of the Department of Finance and Commerce.

A similar meeting also took place in Harbin the following day under the joint auspices of the association and the Harbin Chamber of Commerce and Industry. The same three Manchoukuo Government officials addressed the meeting, explaining the two international agreements.

Meanwhile, the Central Manchurian Staple Produce Association's committee on the standardization of staple farm products held its second meeting in Harbin on October 13.

New Danish Motor-ships

Two Vessels Built at Nakskov Shipyard are Added to Fleet of The East Asiatic Company, Ltd., of Copenhagen

Two important additions to the fleet of The East Asiatic Company, Ltd., of Copenhagen, are the Motor Vessels *Selandia* and *Kina* both built at the Nakskov Shipyard, Nakskov, Denmark. The *Selandia* has already gone into service having been delivered to her owners at Copenhagen in October after having carried out speed trials in the course of the voyage from Nakskov to Copenhagen. At her trials the *Selandia* attained a speed of 16 knots with 5,000 ehp. The speed contracted for with loaded ship was 15½ knots with 6,000 ehp.

The motor-ship *Kina* was launched from the Nakskov Shipyard on November 5 last, in the presence of H.M. the King of Denmark, H.M. the Queen, who named the ship, H.R.H. Princess Margaretha and H.R.H. Prince Axel.

It is noteworthy that the *Selandia*, which was launched last July has been named after The East Asiatic Company's first motor-ship *Selandia*, which in 1912 was the first oceangoing motor-ship in the world. It is interesting to compare the old famous ship with the new *Selandia*, which embodies all the improvements and experiences which have been made during the intervening years. The new *Selandia* shows the high standard which motor-ship-building has now attained.

The vessel has been built for The East Asiatic Company, Ltd. in accordance with the special requirements for ships serving this company's regular Bangkok route, and means in several respects a considerable progress as compared with the ships previously built for this route, and particularly great importance is attached to arranging the ship as practical and comfortable as possible for the passengers on board. The crew's cabins and mess-rooms are all very spacious and light.

As it will appear from the following description, passengers on board are offered a comfort which on essential points excels what the large liners on the same route offer.

The ship has been built to British Lloyd's highest class + 100 A.1. and has the following principal dimensions:

| | |
|-----------------------------|---------------|
| Length | 453-ft. 0-in. |
| Breadth | 63-ft. 0-in. |
| Depth to upper deck | 36-ft. 0-in. |
| Gross tonnage | 8,482 tons. |
| Nett tonnage | 5,170 tons. |

The vessel is furnished with the statutory number of watertight bulkheads, which ensures its buoyancy.

The propelling machinery, which consists of one five-cylinder Burmeister & Wain two-stroke-cycle Diesel motor, develops normally 7,300 i.h.p. The auxiliary machinery includes three three-cylinder two-stroke-cycle Diesel motors supplied by B. & W. The ship has two complete steel decks and further 'tweendeck in the Nos. 1, 2 and 3 cargo holds.

The vessel has fire-proof bulkheads and a modern carbonic acid fire extinguishing plant with a pipe system which automatically shows any formation of smoke, be it ever so slight, in each room of the ship. Owing to the risk of fire all stairways in the accom-

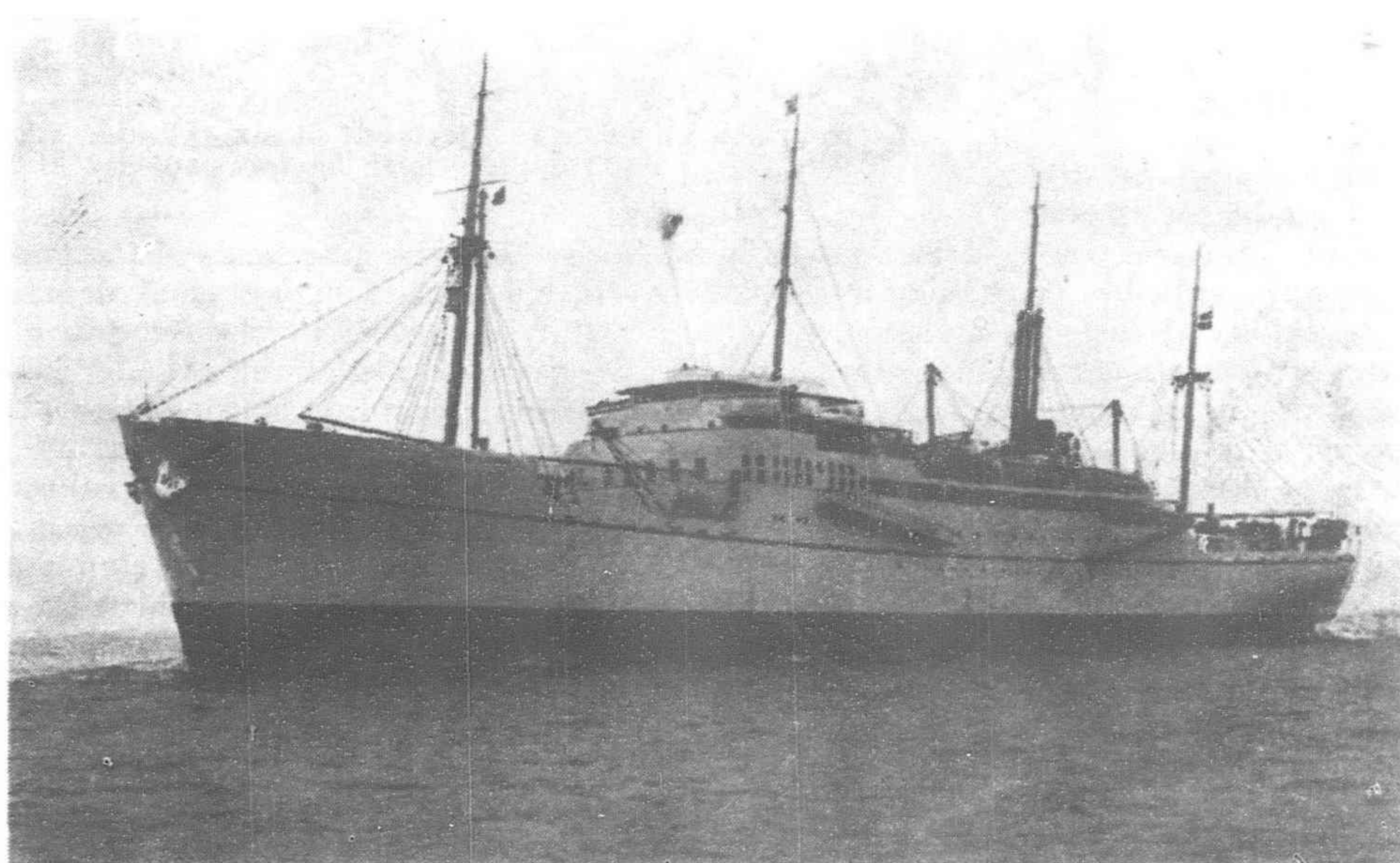
modation are made of steel and brass, and steel construction is used to the greatest possible extent everywhere in the accommodation.

There are five large hatches for the cargo holds, the size of which is 530,300 cb. ft. They are served by 12 derricks with electric winches of Thomas B. Thrige's manufacture and four cranes. The lifting capacity of the derricks varies from three to ten tons.

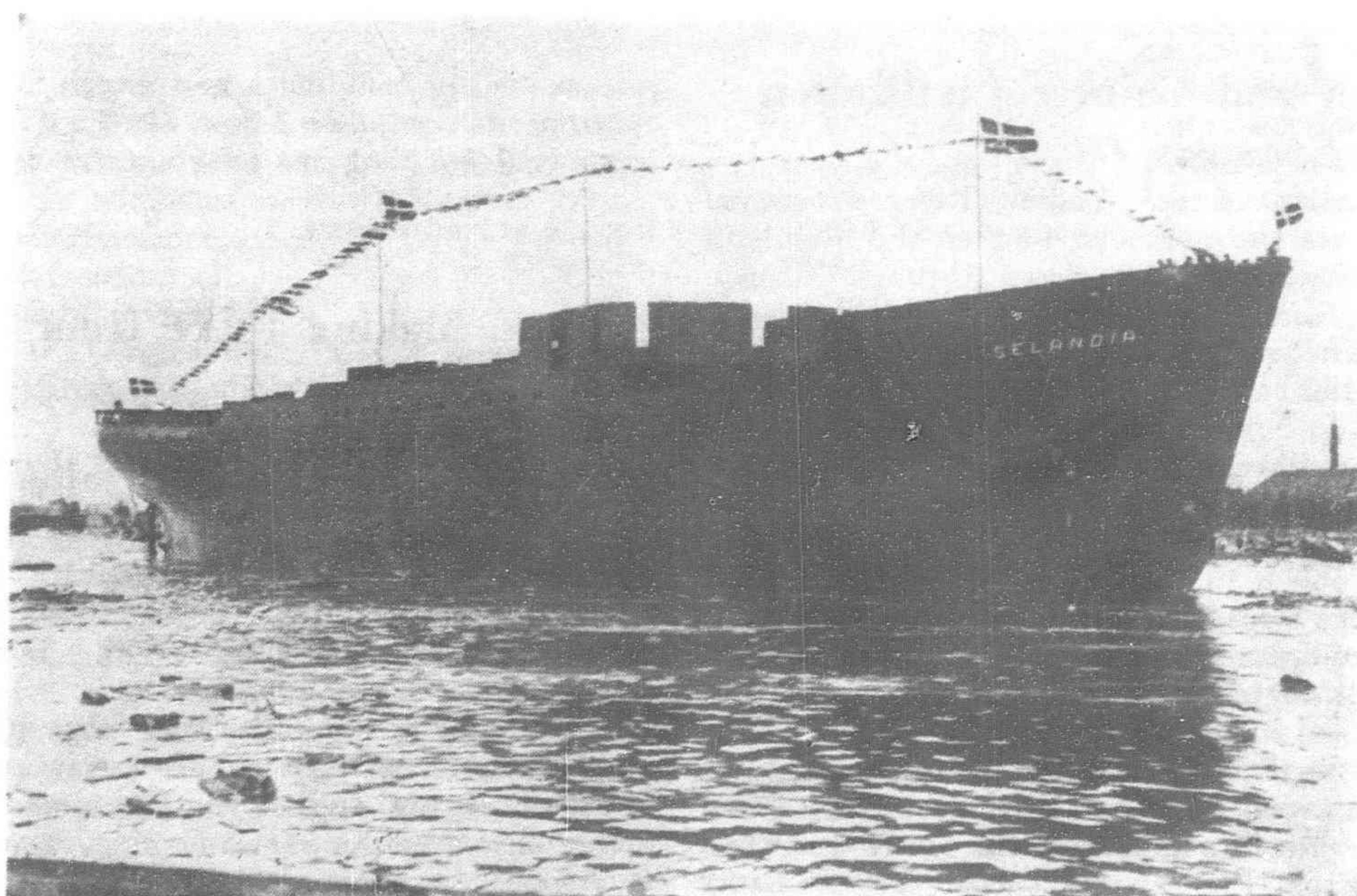
Further the vessel is furnished with a heavy derrick for lifting 40 tons. The all-electric steering gear and the electric windlass have been supplied by Thomas B. Thrige.

The passenger accommodation consists of 22 two-berth cabins and ten single berth cabins. All cabins are very large and furnished with broad beds, wardrobes, toilet, and bathroom.

Forward in the bridge superstructure a large dining-saloon, accommodating 72 persons distributed at small tables, is situated. The furniture in the saloon is of dark polished birch, whilst the walls



The motor-ship *Selandia* of The East Asiatic Company



The *Selandia* as she appeared just after her launching from the Nakskov Shipyard last July

are kept in fine light colors. It is with its many windows and domed ceiling a light and festive room. The saloon is lighted by indirect light and bulkhead-lamps. From the dining-saloon a double stairway leads up to the smoking saloon forward on the promenade deck, whilst the ladies' saloon and the barroom are placed just abaft.

The smoking saloon has polished mahogany wainscots. With its large English fireplace, numerous armchairs, smoking-tables, card-tables, writing-tables, reading-lamps and a large painting this room will give the passengers an impression of comfort and ease.

In the ladies' saloon there are *Salubra* hangings on the walls and polished mahogany skirting-boards. The furniture is of mahogany. There are as well indirect ceiling-lighting as standard-lamps.

The barroom is made in a marked modern style with walls painted in various light colors, and the windows have pale colored panes. The bar-counter is covered with stainless steel-plates with red rubber. For the entertainment of the passengers there are radio loudspeakers with connection to gramophones in the three saloons and a portable loudspeaker on the promenade-deck. The furniture in the ladies' saloon and the barroom has been supplied by the firm *Dysberg, Hansen & Therp A/S* of Copenhagen, whilst the firm *C. B. Hansen* of Copenhagen has supplied the furniture in the smoking saloon.

Living and dining-room for passengers' children is arranged at the corridor leading to the dining-saloon. The room is carried out as a modern English nursery. All cabins and saloons are ventilated and heated by warm and cold air being blown in, ordinary electric fans and radiators being avoided. The ventilating



Launching of the motor-ship *Kina* at the Nakskov Shipyard

electric drive, supplied by *Georg E. Mathiasen* of Copenhagen. The life-saving equipment is of the most modern description, and the lifeboats are placed under Schat davits of latest pattern. The ship is furnished with a powerful radio station and radio direction finder, supplied by *Elektromekano A/S*, Copenhagen.

The building of the vessel was commenced in March, 1938, and the launching took place on July 27. The new *Selandia* is one of the fastest and most comfortable ships of The East Asiatic Company's fleet.

Launching of M.S. "Kina"

The *Kina* is a cargo motor-ship, which is intended for the Eastasia line of The East Asiatic Company, Ltd., Copenhagen. It is arranged with modern saloons and cabins for 12 passengers.

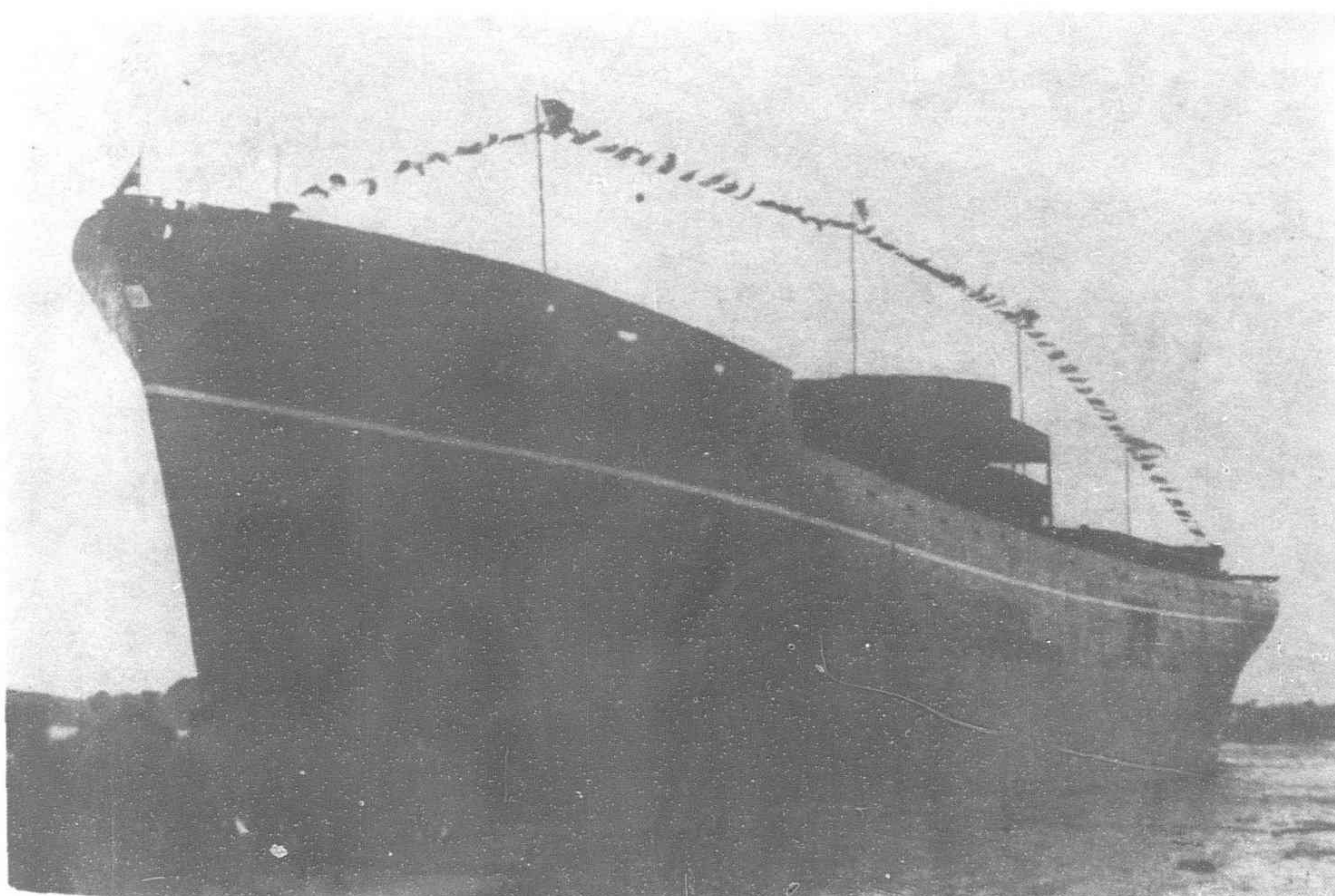
The principal dimensions of the ship are :—

| | |
|------------------------|-------------------|
| Length | 506-ft. 6-in. |
| Breadth | 65-ft. 0-in. |
| Depth to upper deck .. | 41-ft. 9-in. |
| Carrying capacity .. | about 12,000 tons |

The ship is built to Lloyd's highest class, and is of the "Complete Superstructure" type with forecastle. It has seven watertight bulkheads, all carried through to the upper deck, and double bottom in the whole length of the ship.

The ship will be fitted with six hatches, two masts and six derrick-posts, with 17 derricks, one of which for 40 tons, served by 16 electric cargo winches. Further the ship will be furnished with one electric warping winch on the after deck, electric windlass and electric steering gear, all of *Thomas B. Thrige* (Odense, Denmark's) manufacture.

(Continued on page 481)



The motor-ship *Kina* clear of the ways and float after her launching in November, at the Nakskov Shipyard

Airways of the World

Latest Progress with Routes and Loads

By ROBERT BRENARD, Author of *The Romance of the Flying Mail*

THE airlines of Europe, having just completed their nineteenth summer of regular flying, have now embarked on their winter schedules.

In this connection it is interesting to recall that at the end of 1919, when they finished their first year's flying with passengers, mails, and freight, the world's airways were operating over approximately 3,000 miles of routes. To-day—according to fresh figures which have just become available—there are now roughly 330,000 miles of air-lines in operation throughout the globe.

That leap in route mileage, taking the figures from 3,000 to 330,000, gives you a striking illustration of the progress made by organized air transport in just under twenty years.

Glance at one of the latest maps of the air-lines of the world.

Several things strike you immediately. One is the intensive network of airways now operating in Europe. Another is the big and intricate system of routes which has been established in the

United States. And yet another is the vital importance, as modern arteries of speed, of the great long-distance Imperial air services which now connect the Homeland with Egypt, Africa, India, Malaya, Hongkong and Australia.

As for the progress of European air transport, this has been illustrated during the past summer by the fact that, starting from London, it has been possible to reach most of the big cities on the continent during the course of a single day's flying. The increase in the speed and frequency of European air transport, and the growing comfort of aerial travel, have led to a considerable growth in long-distance pleasure touring over the continental routes. This, experts report, has been one of the outstanding features of the summer air season of 1938. People have been flying farther afield than ever before. There was a time when a trip across to Paris satisfied the ambitions of most air tourists. Nowadays, however, they think nothing of a flight to Venice or Rome, or to Copenhagen or Stockholm.



Photo Courtesy of Flight

The Imperial Airways Composite aircraft at Rochester. The upper component "Mercury" made aviation history when she flew the Atlantic on July 20 last, making a record crossing between Foynes, Ireland and Cape Bould, Newfoundland in 13 hours 29 minutes. She carried nearly half a ton of news reels and newspapers, so that English newspapers were read in Montreal and New York the day after publication in England

Officials in big London travel organizations report that there has been a marked increase, during the past summer, in the making of the "inclusive" type of tour in which a passenger, paying one comprehensive fee to cover everything—travel fares, hotels, and other incidentals—sets off on a European trip during which he covers certain stages by air, others by rail, motor-coach, or river craft. It is the completely "trouble-free" nature of these excursions which appeals to the modern tourist. After an itinerary has been worked out for him, and he has paid the one inclusive fee required, he has nothing at all to worry about, and can devote himself whole-heartedly to the enjoyment of an excursion during which, thanks to the speed of air transport as between country and country, and city and city, he can complete in a matter of days journeys which would otherwise take weeks.

Air transport now awaits eagerly two events which will add thousands of miles to the flying routes of the globe. One of these is the opening for traffic, shortly, of the great trunk route which Canada has been organizing between the Atlantic and Pacific and which, linking Halifax with Vancouver, will have approximately 100 main and intermediate air-stations equipped for night as well as day flying.

The other is the establishment as soon as possible, following the experiments which have been in progress, of a regular long-distance flying-boat route to and from across the North Atlantic. It is the establishment of these two great trunk routes which, together with further impending developments on the Pacific, will enable Empire air transport to realize, in due course, its ambition of operating an Imperial air-mail in stages completely around the globe.

World air maps are changing constantly as fresh routes drop into their places in the great flying networks. It is not only a case of opening-up further trunk routes. Developments are taking place constantly in connection with auxiliary and "feeder" air-lines. These essential branch services, connecting at suitable points with main air-lines, carry loads into outlying areas not yet served by any of the existing trunk routes.

It is these "feeder" air-lines which now prove such a boon to lonely, scattered communities living in areas far removed from any city or main center of supply. The craft operating these branch lines not only bring such people their letters and parcels with a rapidity which seems almost incredible, when compared with slow and laborious surface transport, but these feeder-line aeroplanes also carry essential supplies of all kinds, including such things as fresh fruit, meat, and vegetables. In fact, as the Canadian Minister of Transport was mentioning only the other day, there are now small communities in the north and north-west of Canada which have come to rely almost entirely on air

transport for the delivery of essential supplies. Trading-posts and stations which used to be cut off for months at a time from any communication with the outer world now obtain a regular all-the-year-round service of mails and goods by means of auxiliary or feeder air-lines.

Air transport development throughout the world is being encouraged, greatly, by the increases in traffic recorded over routes already in existence. Such increases apply not only to passengers and mails but also to urgent freight. More and more business houses are now discovering the advantages that accrue from rushing special consignments of cargo over the flying routes. The other day, for example, one of the officials in the Imperial Airways freight department at Croydon was calling attention to the increased traffic which had been recorded, during the recent summer season, in the carriage of spare-parts for motor-cars from London to various destinations on the Continent. During the height of the summer season, thousands of motorists cross the Channel to enjoy tours in different parts of the Continent.

And, although the modern motor-car is a highly reliable vehicle, occasions arise when car-owners need to have spares hurried across to them at some European city. It is here that the airways prove such a boon. Any motorist on the Continent who gets through a message early in the morning, asking for a consignment to be sent out to him as quickly as possible, will usually receive this by air that same afternoon or evening.

There is another form of air-freight transport which continues to show rapid progress, and this is the dispatch over the flying routes of trade samples of all kinds.

Firms in England find that the obtaining of orders in markets overseas can often be facilitated greatly if

they send out samples of their latest goods by the flying routes, thus getting them into the hands of clients in a matter of days, as compared with weeks if they went out by surface transport.

The position of commercial aviation at the present time can be summarized in the words of one airway expert who remarked the other day:

"The great 'all-up' mail scheme is now proving of almost inestimable value in accelerating postal communication throughout the Empire; while the speed and frequency of long-distance air services enable business men to fly out to some distant point, conduct urgent business there, and return again to their starting-point, in the time it would have taken them to travel in one direction only by surface transport. And as there are all the additional advantages now to be obtained from a commercial view-point by dispatching urgent freight over the flying routes, it is not surprising that business interests are giving strong support to plans for extensions and developments in world air travel."

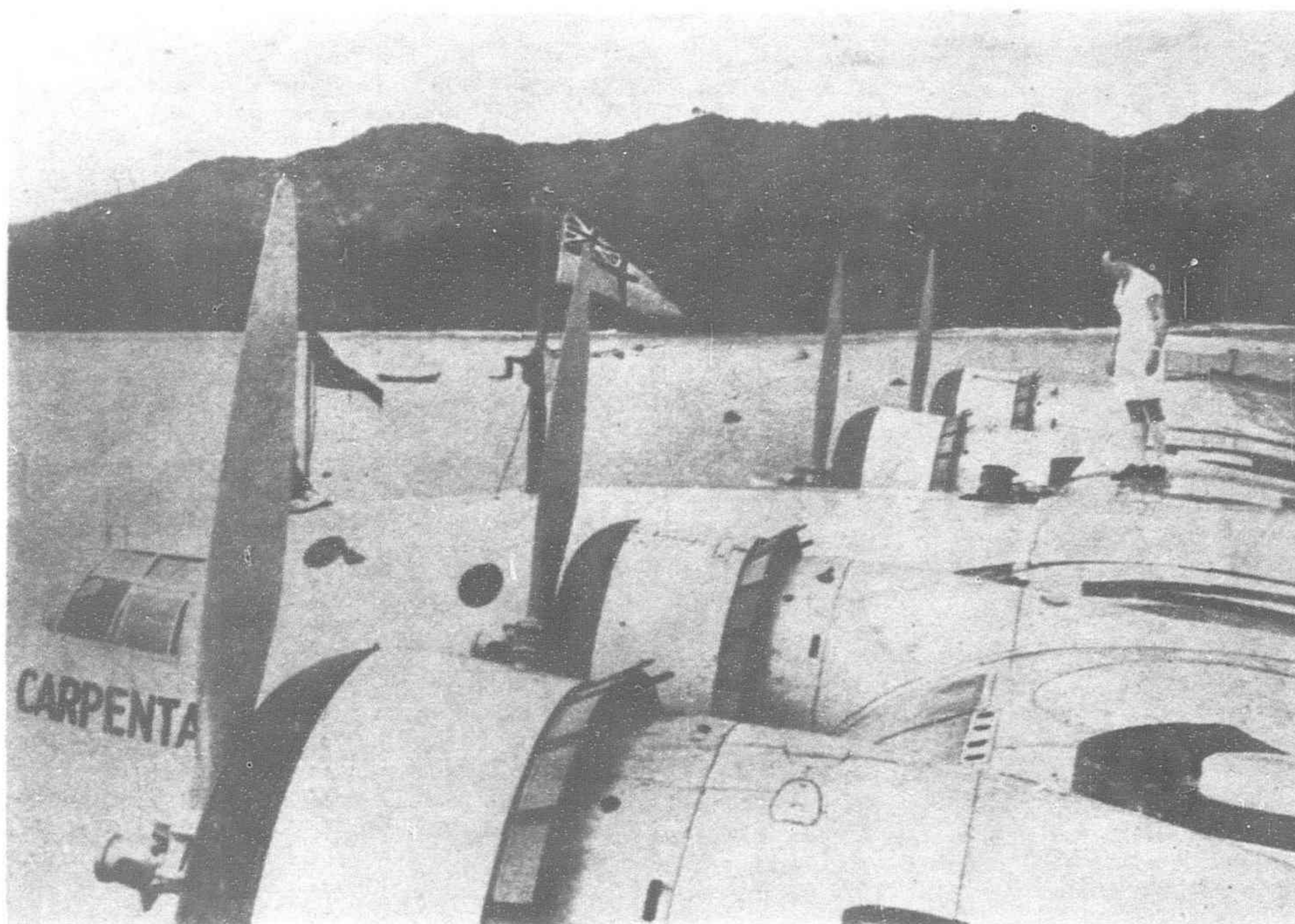


Photo by the Editor of the Journal of the Engineering Association of Malaya

An interesting view of one of Imperial Airways Empire flying-boat at Singapore

New Danish Motor-ships

(Continued from page 479)

The saloons and passenger cabins will be arranged and equipped very comfortably, as in the other ships which the Naskov Shipyard is building for The East Asiatic Company, thus each cabin has bedsteads and adjoining bathroom. The dining-saloon is situated on the upper deck, and the smoking saloon on the bridge deck. These rooms will in every respect be equal to the corresponding rooms in the latest foreign liners.

The galley and the bakery will be furnished with oil-fired ranges, baking oven, etc., and a very large refrigerating plant is installed for the ship's provisions.

The propelling machinery will consist of one Burmeister & Wain double-acting two-stroke-cycle Diesel motor of about 10,400 i.h.p., which will give the loaded ship a speed of 16 knots.

Engineering Notes

AVIATION

COMPANY FORMED.—Permission has been given by the Capital Control Commission of the Bank of Japan for establishment of the Dai Nippon Aviation Company, with a capitalization of ¥25,500,000, of which ¥17,625,000 will be paid up according to *Domei*.

JAPAN-U.S.A.—Travel by air between Tokyo and San Francisco in two-and-a-half days will become possible when the Japan Air Transport Company opens next summer its air routes between Tokyo and Palau, via Guam, Takao (Taiwan) and Palau, and between Palau and Yalut.

SHANGHAI-FORMOSA LINE.—Shanghai will be linked by air with Taihoku, the capital of Formosa, if negotiations in Tokyo are successfully concluded, says the *Shanghai Mainichi*. Under the present plans of the Formosan Government, several large Douglas air liners will make the trip three times a week, covering the 510 miles between the two cities in less than three hours.

PAN-AMERICAN AIRWAYS.—"Pan-American Airways hopes to have more frequent trips and bigger and faster Clippers on the trans-Pacific route within the next year or so," said Mr. E. O. McDonnell, member of the Executive Committee of the Company. A fleet of giant Boeing flying boats is under construction in Seattle. Some of these ships will be placed on the trans-Pacific service, while some will be assigned to the trans Atlantic run.

AIRPORT PRESENTED.—A 100-acre airport for both land and sea craft, which was recently completed in Kawakita-mura, Kahoku-gun, Ishikawa prefecture, on Kahoku Lagoon in the northern suburbs of Kanazawa was formally donated to the Communications Office by the Kanazawa municipality. Celebrating the completion of the new airport, three army planes and two navy planes came to the airport, in defiance of the rain, to mark the first landing made there.

NEW AIR LINE.—It is stated in Paris that Air France are now giving serious consideration to the idea of extending their Marseilles-Hanoi line to Japan. At present the Far Eastern service of Air France is a weekly one starting from Marseilles on Thursdays and reaching Hanoi, in Cochinchina, on the following Thursday via Damascus, Baghdad, Karachi, Calcutta, Akyab and Bangkok. From Bangkok a service branches off to Saigon, France's principal port in Cochinchina, the main machine going through to Hanoi, in French Indo China.

BERLIN TO TOKYO.—It is reported that the giant 26-passenger F.W. 200 Condor plane, in which German aviators originally planned to circle the globe in eight hops in August last, will attempt a good will flight to Tokyo from Berlin via the so-called southern route. An application for permission for flying over Japanese territory was presented to the Aviation Bureau through the local German Embassy. Leaving Berlin, the plane intends to cover the 15,000 kilometers to Tokyo under 49 hours, flying by three stages, with stops at Baghdad, Karachi and Hanoi.

MINING

RICH COAL DEPOSIT.—A rich coal deposit, estimated at 700,000,000 tons, has been discovered in the neighborhood of Mishan, Mutankiang Province, Manchoukuo, *Domei* reports. To develop it as soon as possible, the Manchoukuo Colliery Company will remove all villages from the site, at present occupied by Japanese immigrant farmers, at a cost of ¥250,000.

FINDS IRON ORE.—A large deposit said to contain some 180 million tons of iron ores was discovered by a Manchu at Santungtingtzu in the seventh district, of Tung-feng-hsien, Fengtien Province. The discoverer applied to the authorities for mining test permit for the new mine, sending ore specimens amounting to 30 "kan." The Manchuria Mining Development Company then made a field investigation, which proved that the new iron deposit yields three-fifths of iron.

COLLIERY PROJECT.—Recent negotiations between the North China authorities and the South Manchuria Railway regarding development of the Tatung Colliery have resulted in an agreement to establish the Tatung Coal Resources Development Company, in which the Meng Chiang Autonomous Government and the proposed North China Traffic Company will jointly invest. Under the proposed plan, the S.M.R. will mine 10,000,000 tons of coal in 1941, of which 3,000,000 tons will be for consumption in North China and 8,000,000 for export to Japan.

S.M.R. PROJECTS.—In coping with the recent remarkable rise of the munitions industry as well as with the revised five-year industrial program of Manchoukuo, a strengthening of the mining and industrial sections of the South Manchuria Railway Company is being contemplated. According to the plan, it is reliably reported, reforming fundamentally the structure of the Fushun Collieries, the railway company is planning to replenish the departments of mining, oil manufacturing and electricity generation and will in the future establish a general directorate of mining and industry parallel with the General Directorate of Railways.

NORTH CHINA IRON ORE.—Plans are reported to be under contemplation by the Provisional Government at Peking to establish a new Sino-Japanese joint mining concern for the exploitation of iron ore resources in Charhar, Hopei, Shansi and Shantung. The plans are to be formulated under a unified system along the line of the Japan-Manchoukuo program for an increase of iron ore production. They are to be put into effect simultaneously with the inauguration of the projected North China Industrial Development Co., it is reported.

An outline of the proposed iron ore excavation program follows:

(1) Exploitation of iron ore resources will be carried out on a modern scale. Stress is to be laid on the development of the promising Lungyen and Suanhwa iron mines. As for those at Yangchuan and other points, the Government will take them up later.

(2) In view of the fact that 77 per cent of Japan's iron ores are shipped from abroad, those produced at Lungyen and Suanhwa will be directed to Japan for exportation.

(3) Large iron works each capable of turning out one million tons of iron manufactures per year will be built at Tientsin or neighborhood and at Taiyuan, in consideration of facilities for the transportation of products of the Tsingsing coal mine.

COMMUNICATIONS

TOKYO-TO-ITO RAILWAY.—The direct railway service between Tokyo and Ito, Izu peninsula, will be opened on December 15, and several through trains will be operated. Construction work on the section between Ajiro and Ito is now nearing completion. It took ¥5,600,000 and six years for completion. The most difficult engineering job on the line was that of a tunnel at Usami.

POWER MERGER.—Negotiations for the merger of the Chugoku Godo Electric Company and the Sanyo Central Hydro-Electricity Company have been successfully closed through the efforts of the Industrial Bank of Japan, according to the *Nichi Nichi*. The deal will bring into existence a ¥100,000,000 company, the largest in the Chugoku district. It is likely that the merger will include an affiliate of Chugoku Godo, namely, Tottori Electric Light Company, capitalized at ¥5,000,000, of which ¥3,860,000 is paid up. Chugoku Godo is capitalized at ¥50,000,000, of which ¥37,750,000 is paid up, and Sanyo Central is capitalized at ¥39,000,000, fully paid up.

CURRENT FOR YINGKOU.—The power cable between Anshan and Yingkou, extending about 80 kilometers, construction of which has been under way since January, this year, by the Anshan branch of the Manchuria Electric Corporation, carrying electric current to Yingkou from Anshan. Yingkou and its suburbs formerly depended on the Yingkou power-house for its supply of electricity, but with the opening of the power cable between Anshan and Yingkou, the current is being sent from Fushun via the Anshan transmission station. The latter is furnished with 154,000 kilowatts from Fushun, converted into 44,000 kilowatts and relayed to Yingkou. As a result the Yingkou power-house will close. When the Fushun power-house is constructed, a power cable linking Fushun, Anshan, Yingkou and Fuhsin will be constructed for handling electricity with a voltage of 154,000 kilowatts.

THE DON-VOLGA CANAL.—Details of the Soviet Government's 3,500,000,000 rouble Don-Volga canal project were revealed in Moscow with announcement that the engineering project will be completed in 5½ years, when Moscow will be connected by water routes with five seas, reports a Moscow cable. The project provides for a canal 1,250 kilometers in length linking the two rivers in southern European Russia virtually at their narrowest point of approach between Leningrad, on the Volga, and the Lofstov, on the Don. The canal is to have a width between 100 and 190 meters, allowing large vessels to pass, and a depth between eight and 20 meters. The report says the canal is to have a velocity of 600 cubic meters per second. Three large hydro-electric generating stations will be constructed on the way, two of 160,000-kilowatt generating power each and the third of 210,000-kilowatt generating power.